ENGINEERING NEWS-RECORD

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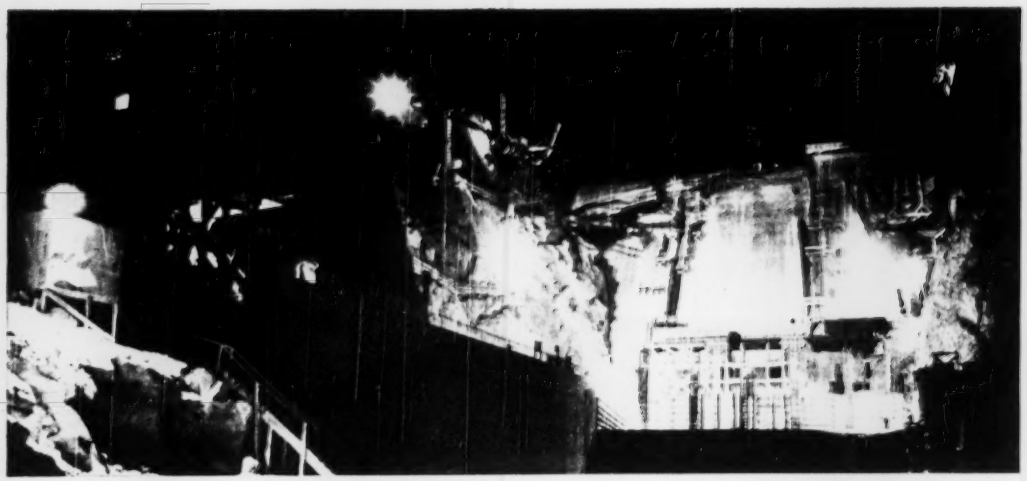
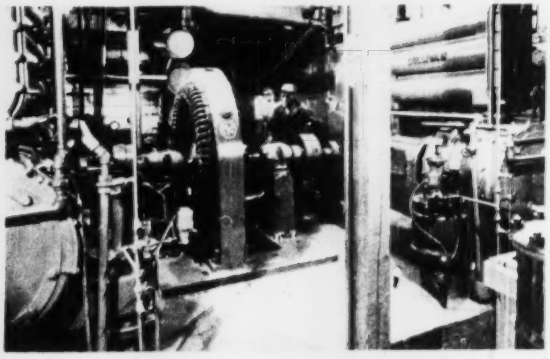
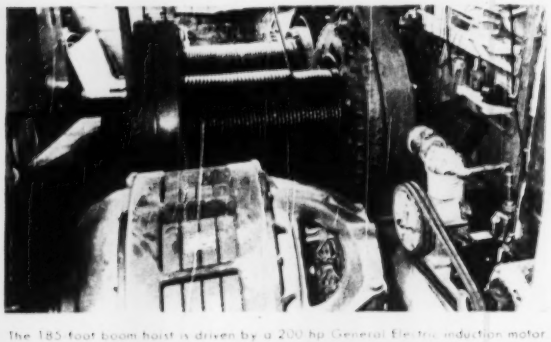


speeding construction at Kortes Dam



All air pressure for job comes from compressors driven by a 500-hp G-E motor



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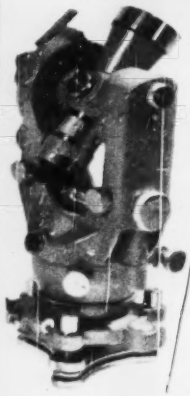

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ENGINEERING NEWS-RECORD

Volume 144 JUNE 15, 1950 No. 24

WALDO G. BOWMAN
Editor

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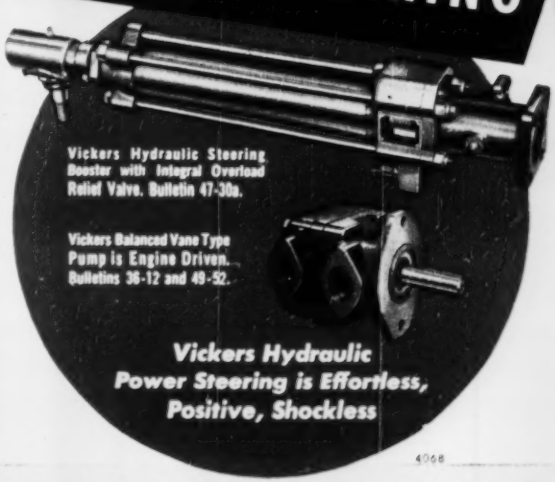
Vickers Hydraulic Steering Booster with Integral Overload Relief Valve. Bulletin 47-30a.
Vickers Balanced Vane Type Pump is Engine Driven. Bulletins 36-12 and 49-52.

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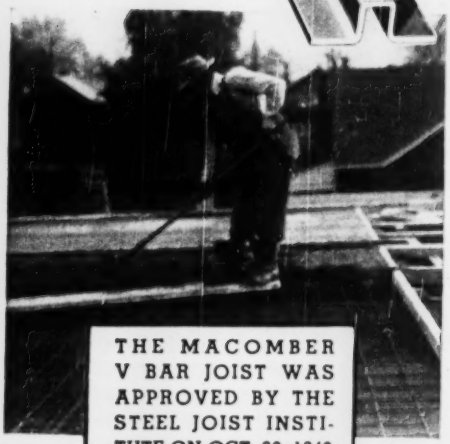

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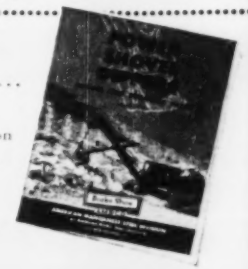

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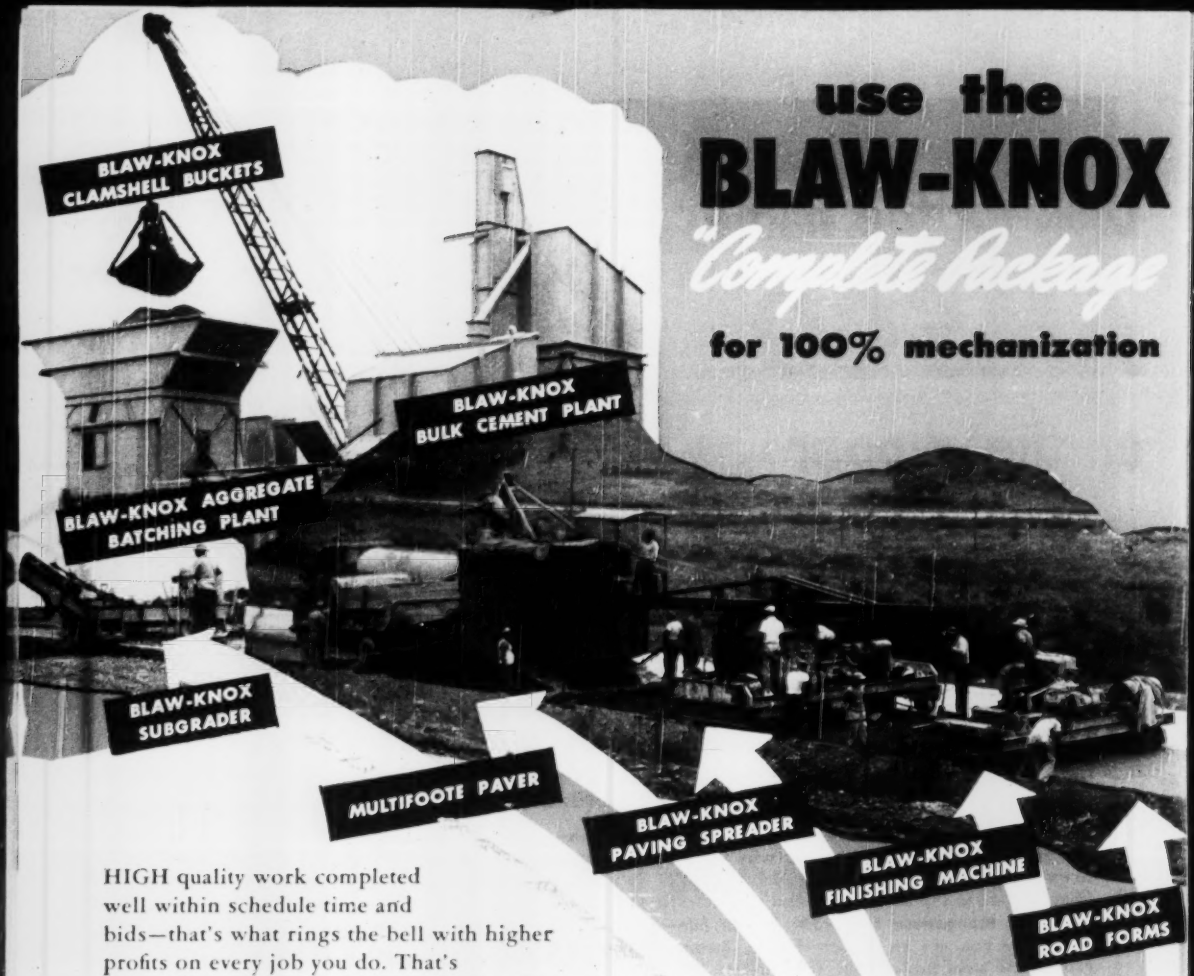

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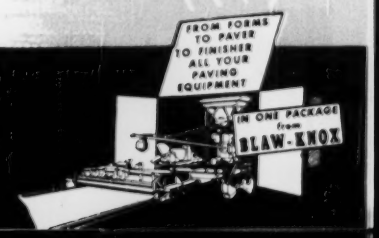

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NEWS BRIEFS

Are You A Contractor?—Arizona's attorney general says you are, maybe, if you sell a raw material such as sand or gravel. If you quote a price for material plus installation, then hire a licensed contractor, you qualify as a contractor under the ruling.

It Takes Two—The Teamsters Union (AFL) has been warned by the National Labor Relations Board that it can't legally sign up an employer's only truck driver, then force the company to bargain collectively on his behalf. It takes two workers to bargain collectively, NLRB says.

Tourist Promotion?—Passenger cars crossing the Golden Gate Bridge in San Francisco will pay only 40¢ instead of 50¢ after June 30. Biggest opposition came from those who wanted a break for commuters. New York's Port Authority favored the latter last week by halving the cost (to $10) of a 40-trip ticket good for one month.

Let (Uncle) Sam Do It—Stuart A. Cunliff, California Electric Power Co. engineer who conducted first commercial application of cloud nucleation as a power resource development (ENR March 2, p. 33), wants the federal government to regulate rainmaking. He says there's no doubt that man can control rainfall, but that this raises legal problems which require federal licensing, research and qualification of rainmakers.

Think You Have Troubles?—J. A. R. Cardinal, of Montreal, charged with failure to repair a chimney, pleaded that the 175-year-old building is so unstable he can't get workmen to go onto its roof, can't get insurance either. He adds that the law refused him permission to evict tenants so he could demolish the structure.

Economy Note—Army Engineers are closing their 50-year-old Tampa sub-office as an economy move, transferring its functions to Jacksonville. Seven employees may transfer elsewhere to Army offices.

How Can You Tell?—E. H. McGraw & Co., constructors, claims an industry advertising "first" with its new wallet-size card summarizing Daylight and Standard Time information for important cities, all states and Canada. Free by writing R. F. Kline, E. H. McGraw & Co., 51 E. 42nd St., New

(Continued on page 10)

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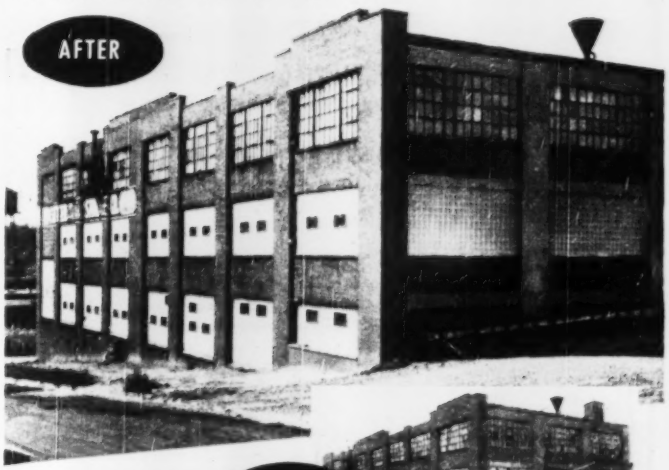
You'll find it to your advantage to learn what PC Glass Blocks can do in your buildings. Why not consult with our specialists about a practical program of sash replacement? Meanwhile, fill in and return the coupon for further information.



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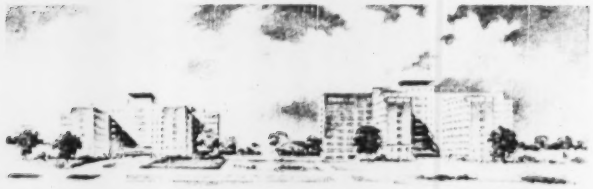

900-bed Veterans Administration hospital, West Haven, Conn. William A. Riley, Architect-Engineer.

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CLEVELAND • BOSTON • NEW LONDON • PASADENA, TEXAS

(Continued from page 9)

York City. Card doesn't say whether Daylight is ahead of or behind Standard Time.

Pretty, Please—Boston's Planning Board has warned Public Works Commissioner Callahan to "dress up" his proposed overhead arterial highway, if he wants board approval of it. The proposed structure, the board says, would impair values of adjacent property.

Just in Case—The Montana Federation of Labor and three local unions may intervene if Montana's district court ever holds a hearing on a case that's been dragging since last summer. It involves the state's right to award a street paving contract to the second low bidder because the low bidder had been having labor trouble.

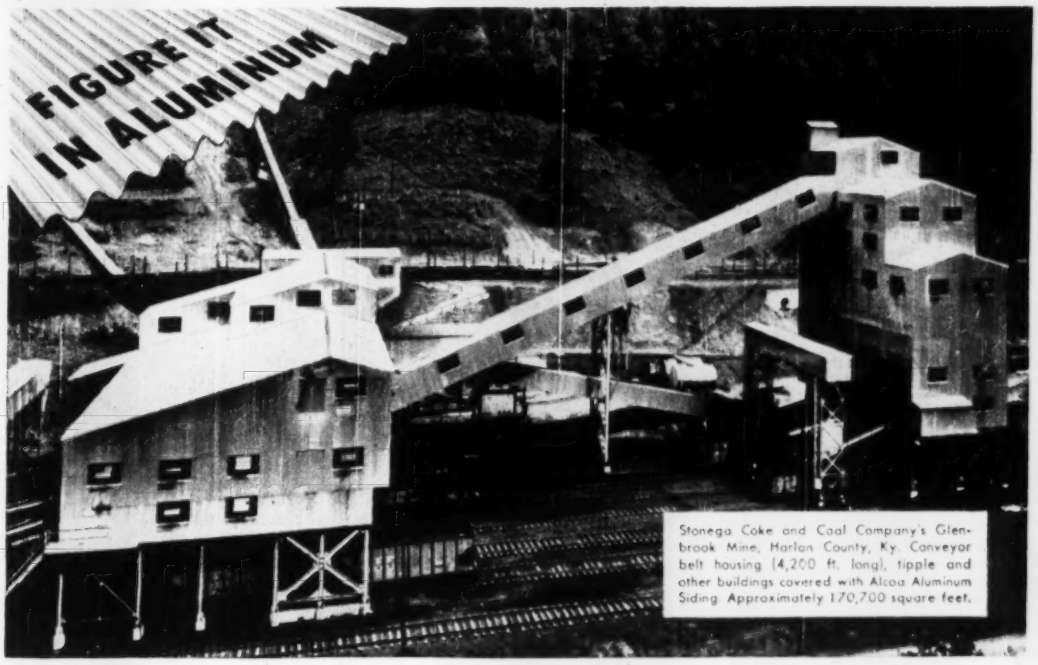
UMW Journal, Please Copy—Chicago is studying comparative costs of using gas or oil instead of coal in municipal pumping stations and power plants. Coal cost $2.87 per ton in 1933, peaked at $7.50 in 1948 and came in at $6.76 on a bid for a temporary supply this year.

Not All Rural—North Carolina's preoccupation with its $200 million rural road program didn't divert all attention from main roads. Gov. Scott Kerr has ok'd an $8,600,000 allocation from surplus funds for what he termed the eight most critically needed primary road projects in the state.

Steady Tenants at Last—Once the world's largest factory, the Dodge airplane engine plant in Chicago will be converted into a federal office center. Early attempts to dispose of the government-built, $17.1 million, 5,000,000 sq ft structure caused a tumpus between Tucker Corp., whose automobile never got into production, and Euston Corp., whose prefab homes never got into use. Tucker got it, but the U. S. still has it.

Just Take a Drill . . .—Carl Gunther, of Akron's sewer division, got the city's largest suggestion award—$100—for a suggestion that will save $2,632 yearly in sewer cleaning costs. It involves permanent supports in manholes to support cables which will pull cleaning apparatus from manhole to manhole. Timber framework won't have to be erected each time hereafter.

Stitch-in-Time Dept.—Buffalo, N. Y., district of the Corps of Engineers is going to plow through with people who release oil into the Buffalo River. Corps points out that it wants no unnecessary threat to navigation.



Stonega Coke and Coal Company's Glenbrook Mine, Harlan County, Ky. Conveyor belt housing (4,200 ft. long), tipple and other buildings covered with Alcoa Aluminum Siding. Approximately 170,700 square feet.

Put up more siding per man-hour

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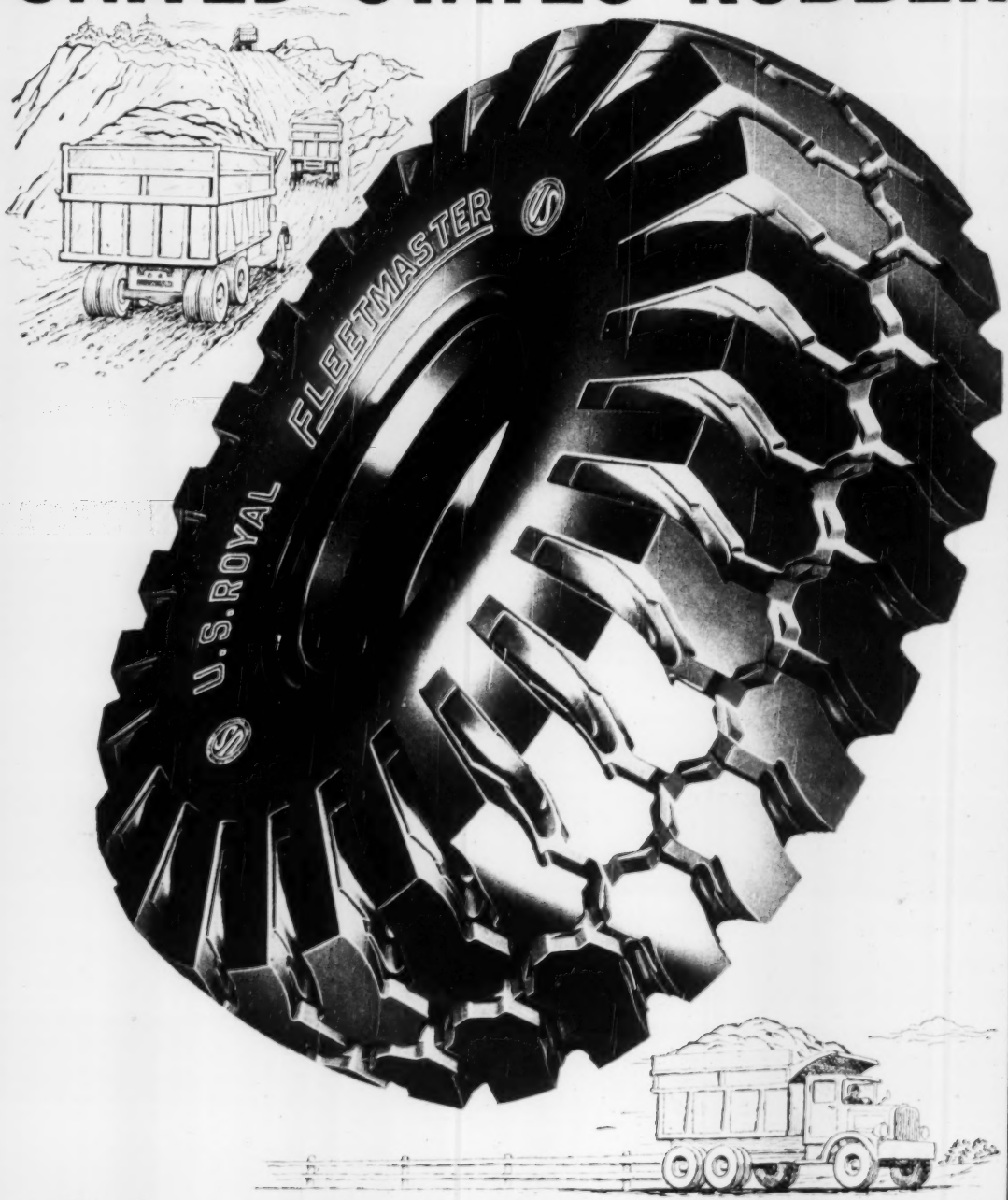

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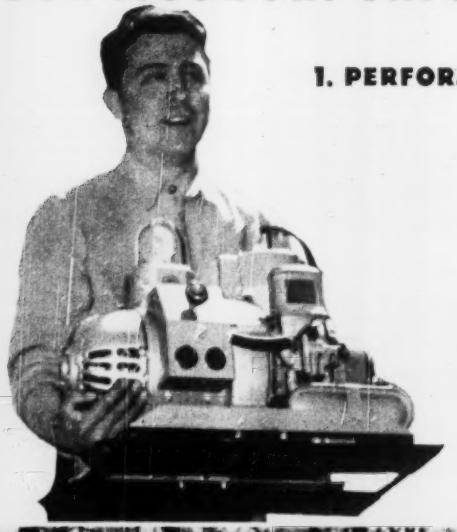
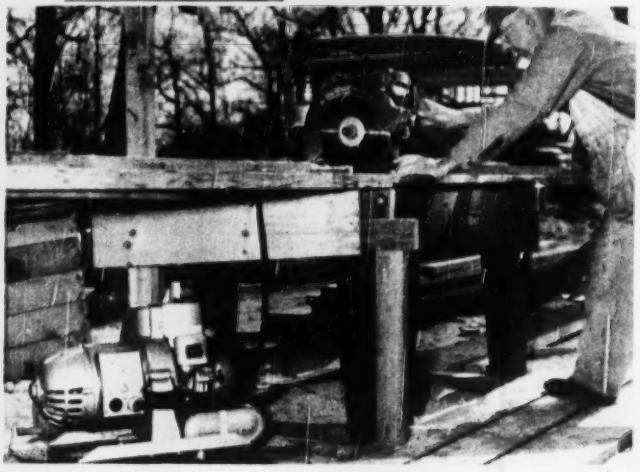
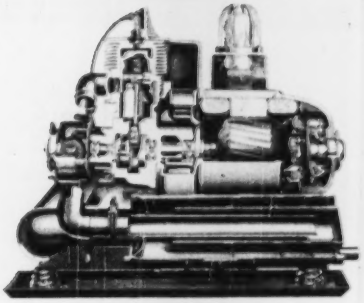


HOMELITE *Carryable* GENERATOR





2. Dependability. For more than 25 years, Homelite engineers have specialized in building carryable gasoline-engine-driven units. Their experience in building close to three hundred thousand of these units has been responsible for the simplicity of design and precision construction with finest materials that insure long-haul dependability and lowest maintenance costs.

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Pachyderm of trailers protected by Monsanto PENTA CHLOROPHENOL preservative

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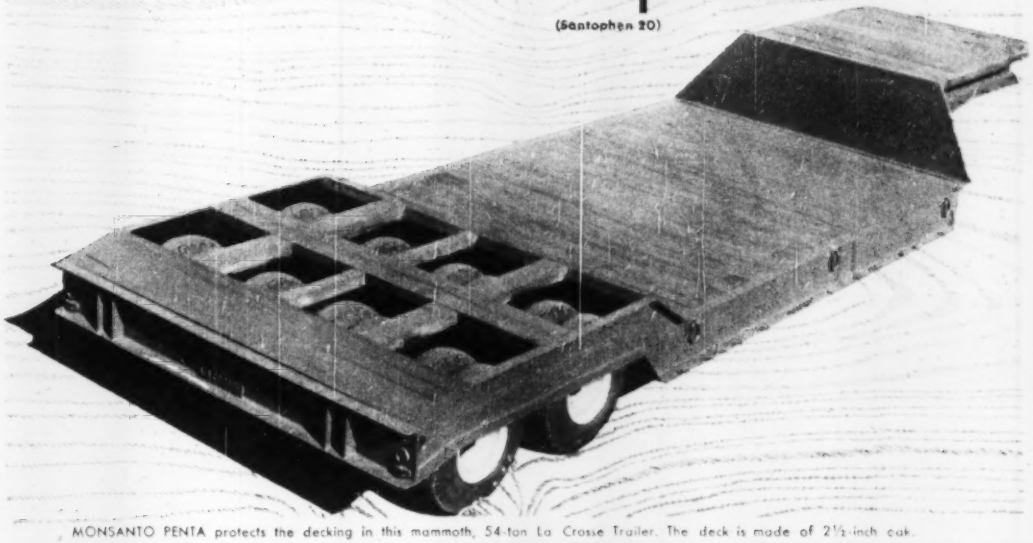

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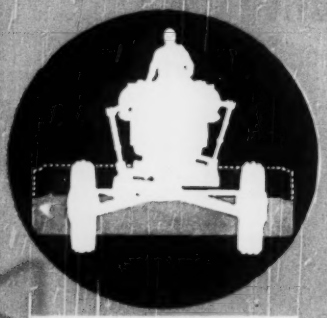

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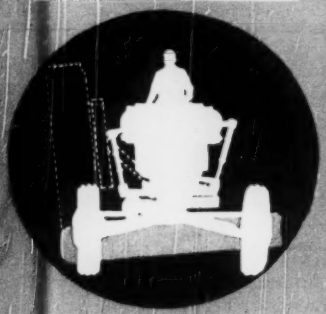

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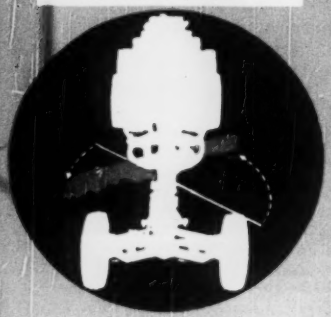

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THE CONSTRUCTION WEEK

STILL LUSTRON—The harried Reconstruction Finance Corporation hasn't heard the last of its venture into metal prefab housing. Having foreclosed on its $36,500,000 loan to Lustron Corp. three months ago and operated the firm—still in the red—RFC finally tried to buy out the assets for $6,000,000 at a court-ordered auction in Columbus last week. RFC was only bidder at what observers thought was a somewhat steamrollered auction. Its bid was accepted and a $100,000 check deposited. But on June 8, three suppliers, who claimed Lustron owed them a total of $4,842,000, got a temporary injunction blocking the sale. What'll happen now is anybody's guess. But close watchers have been figuring RFC strategy like this: RFC knows of a combination of at least three potential buyers (including a steel company, one of the biggest plumbing equipment firms and a paint-process supplier) who want to buy. So, RFC bigwigs figured their best bet was to buy in all of Lustron's assets, then sell the whole thing as a package, rather than in separate pieces.

U.S. BUDGET—SLOW BUT BETTER—Due, observers think, largely to Congress' recalcitrance, the U.S. budget for Fiscal Year 1950 is far off schedule—but a little to the good thereby. As of June 30, the figures will add up about like this: Spending—nearer $41 billion than the $42 billion planned; Receipts—nearer $37 billion than the estimated $36 billion; Deficit—$4 billion plus, instead of $5.4 billion as forecast. Reasons for the smaller deficit: Business gains have boosted receipts a bit; the Administration hasn't been able to spend as fast as it planned.

THOSE TRUSTS AGAIN—With a partial victory over the Aluminum Company of America under their belts, U.S. antitrust lawyers are turning their guns on their biggest game yet—Big Steel. Washingtonians figure the motives behind the attack on U.S. Steel are double: To break up the company under present laws; prove that present laws must be made stronger.

(PSYCHOLOGICAL) POWER-OF-PRESS DEPT.—To avoid frightening members of the press attending football games, the University of Washington has ordered the addition of stiffeners to the cantilevered roof of its proposed new stadium grandstand at Seattle. (ENR April 27, p 28). The roof covers a 150 x 400-ft. area, to provide unobstructed views for spectators. A press box is to be built atop the roof. Wind tunnel tests indicated that the rare combination of gale-force winds and heavy snow would cause the roof to vibrate in a 12-in. arc, although there's no question of structural safety. University spokesmen, commenting that they had no desire to "scare the pants off" the press, said stiffeners will be added under roof-framing cantilevers.

BUY FROM WHERE?—Seattle's City Light Department found its efforts to get out of an embarrassing position putting it neatly in the middle of an international trade situation. It started some months ago, when bids were opened on a large transformer order. Somewhat startled, City Light discovered low bidders—by a big margin—were two British firms. The bids were rejected on the ground that the transformers were to be installed in the remote Ross powerhouse on the Skagit River, and engineers didn't want unfamiliar equipment. But—seeking to avoid similar situations—City Light asked city officials for policy. The city council promptly brought in an ordinance that would have prohibited purchase of any foreign-made goods unless savings of 25% were assured. This brought protests from foreign representatives, and local businessmen. The council hastily retracted its ordinance, leaving City Light to make future decisions.

STOPPED FOR NO GAIN—Federal power expansionists, who center largely in the Interior Department, got nowhere in their attempts to take over the Army's most recent Omnibus Flood Control-Rivers and Harbors authorization bill. Their chagrin at failure to do so echoed in the statement President Truman made when he signed the measure, (ENR June 1, p 17). Congress refused to strip the Army of jurisdiction it has held for years—and not exercised thoroughly along lines sought by the power expansionists. Two Interior-backed moves to establish inter-agency and state commissions to study New England hydro development and development of the Arkansas, White and Red River basins were thrown out of the bill, leaving these areas under Engineer control. And Reclamation's cherished "basin account," was thrown out, too. (The basin account is a device to pool revenues basin-wide, offsetting basin costs.

PILOT PLANT—The U. S. Public Health Service is looking on its mission to assist Liberia as a pilot test whose results can be applied later to the President's Point Four program for bringing know-how to undeveloped portions of the world. The mission is conducting an intensive malaria control program; operates a model clinic in Monrovia. The program is designed to be taken over by natives as soon as training is completed.

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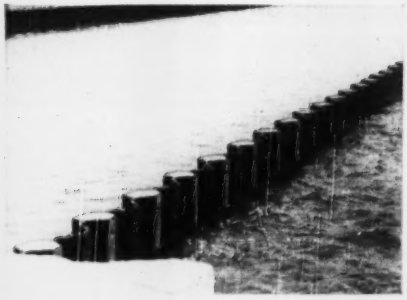

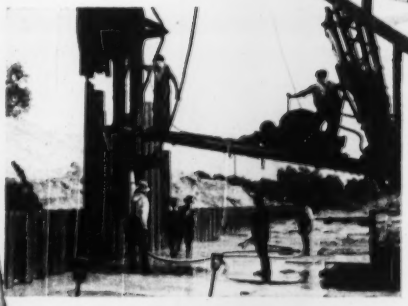

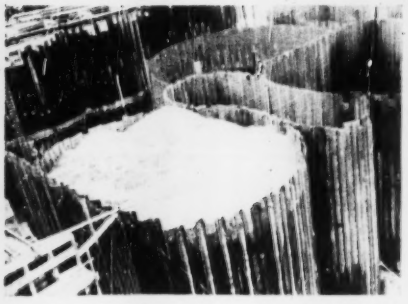

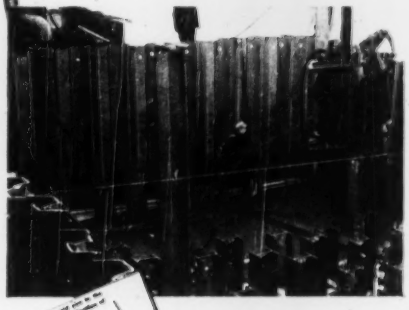

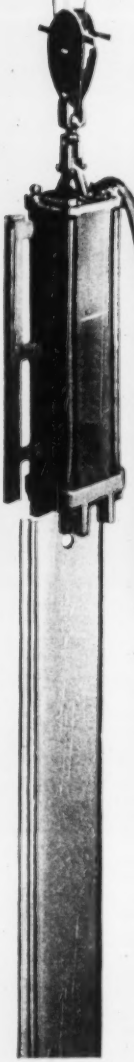

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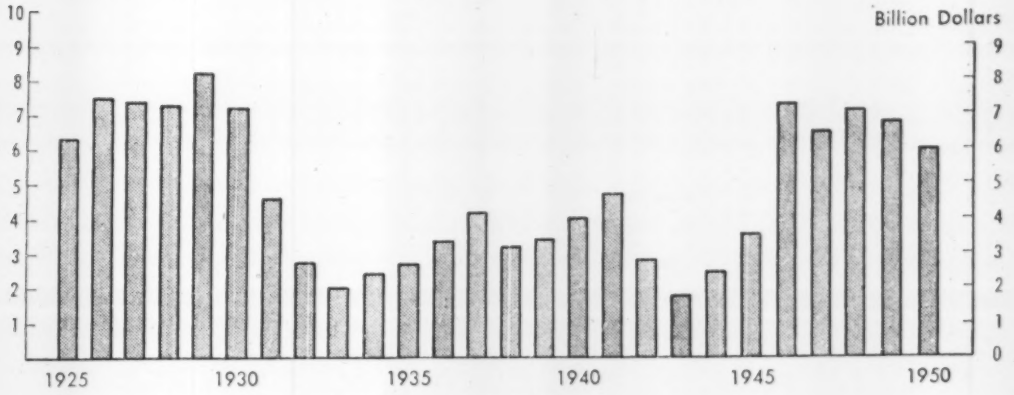
CONSTRUCTION TRENDS

Expenditures for Private Business Construction 1925-1950 -- in constant 1950 prices



Source: Machine and Allied Products Institute and McGraw-Hill Department of Economics

BUSINESS CONSTRUCTION LAGS

Business construction—industrial, commercial, utility, farm building—is lower now than it was twenty years ago—although U. S. population and industrial activity have grown tremendously since 1930.

This is the conclusion of a recently-released study of the Machinery and Allied Products Institute. The comparison was made in terms of constant dollars, which adjusts for changes in prices over the years.

Business construction also is lagging far behind business expenditures for new equipment. The MAPI study shows business is spending 50% more for equipment now than it did twenty years ago. (Again the comparison is in constant dollars.) But it is spending 10% less for buildings. Why is this so?

MAPI examines five reasons—and comes to the conclusion that all together they don't account for it.

1. Business is making better use of space. Year by year, it needs less space to put out the same amount of production. This is true, probably. But this process was also going on twenty years ago. Its effects today shouldn't be much greater, if any, than in 1930.

2. Overbuilding in the 1920s. This may have happened, although the figures don't show it was great. In any case, underbuilding during the 1930's would have offset it.

3. Shortage of investment capital. This has been an important factor. High taxes and the low level of stock prices have made it difficult to raise money.

4. A decline in the rate of growth of the labor force, the total number of people at work or looking for work. The labor force was growing at the beginning of this century at a rate of 2.3% a year. Now the rate is 1% a year. This is probably important in explaining the drop in demand for new plant space.

5. Construction costs, which in recent years, have increased much faster than have equipment costs. This has increased business' incentive to renovate or re-equip old buildings rather than to replace them.

But all of these things together, in the Institute's opinion, don't account for the lag. What can be done about it? MAPI suggests one thing.

Apart from revising taxes, which is a question of public policy, MAPI suggests speeding up the process of making buildings obsolete. MAPI estimates that almost 60% of all business buildings are more than 20 years old. About 30% are 30 years old, or older.

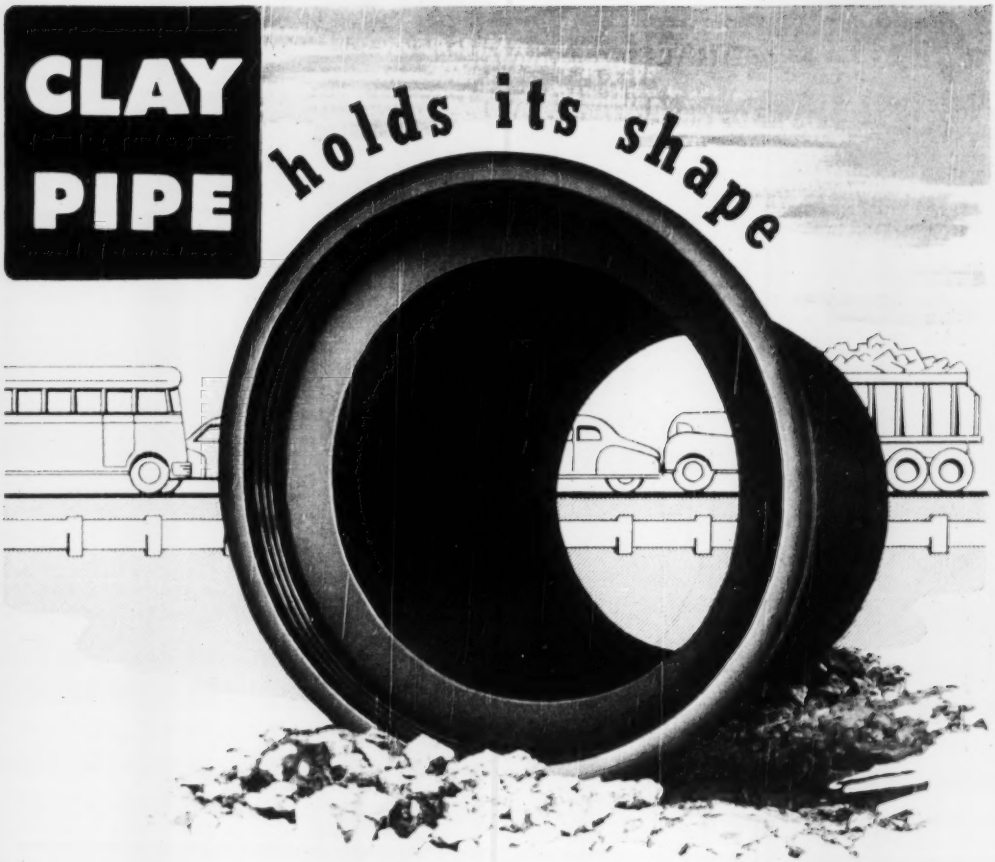
Better design—more efficient buildings, designed to be built cheaper—could obsolete a huge share of these existing buildings. It would make them too expensive. However, MAPI hasn't considered two factors.

One is that a new machine is easier to sell than a new building. It is a much smaller investment and begins immediately to produce results. The other is salesmanship itself. Equipment is sold in hard-driving campaigns backed by lots of advertising. Salesmen and engineers are constantly demonstrating results.

Buildings, on the other hand, usually are *not sold*. The customer makes up his own mind that he wants a new plant—and then calls in the builders. There's a challenge to construction in both these points.

Finally—the tax problem is basic. Industrial building probably won't reach the levels it should until the taxes that whittle away at equity capital are reduced. That will mean cutting corporation taxes, to allow companies to retain more of their earnings. And it will mean reducing personal income taxes.

CLAY PIPE holds its shape



VITRIFIED CLAY PIPE is fired *hard* . . . it does not lose shape and flow capacity. Its rigidity keeps it round and smooth under the live or dead loads for which it is rated. Even under high temperatures, Clay Pipe holds its full inside diameter. It won't squash out — can't be cut or chewed by the rotary tools used to remove bulky obstructions from the line. In fact, Clay Pipe can't be affected by *any* of the common causes of sewer failure. It doesn't rust, corrode, melt, crumble, or disintegrate. Its permanent, trouble-free life doesn't depend upon sulphide control devices or the delicate balancing of such factors as sewage temperature, velocities and age of sewage. It's the *only* pipe built to withstand any operating conditions.

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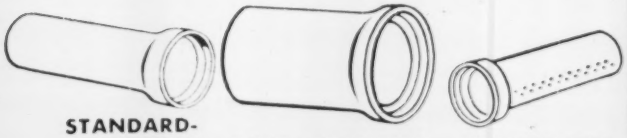

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New Horizons

SIGNIFICANT ENGINEERING NEWS came out of Washington last week in the guise of a Supreme Court decision and the signing of a bill by the President. They were given no engineering flavor by the headlines, but the possibilities are plain nevertheless.

What happened was this: The Supreme Court ruled that the federal government has top right to the submerged oil lands along the Gulf Coast of Louisiana and Texas. It had acted similarly with respect to the marginal sea lands of California three years ago. And the President signed the foreign aid bill, which included authorization of $35 millions for a start on the technical assistance (Point 4) program for economically underdeveloped areas.

The possibilities of the Point 4 program are the most obvious, although perhaps not the most immediate. When and if the money is actually appropriated, American engineers will find opportunities beckoning from Asia, Africa and South America. Roads, railroads, harbors, water supply, sanitation and housing are some of the needs that are implicit to the objective of raising the standards of living in these underdeveloped parts of the globe.

The administration is convinced that the program is a necessary part of our cold war strategy, a logical successor to the Marshall Plan. Despite opposition, the appropriation will be made. Congress also may be expected to pass a bill putting the Export-Import Bank in the business of selling insurance to protect American properties abroad and assure conversion of profits into dollars. Even Congressmen who oppose the program on principle admit that private investment must supplement, and eventually supersede government grants if a betterment program for underdeveloped countries is to succeed. The Point 4 program, until now only a hazy idea, is acquiring some substance.

The submerged oil lands decision removes a cause for indecision that has held back off-shore drilling—and the construction of the necessary drilling platforms in deep water. Now it is fairly certain that the Department of the Interior, not state conservation commissions, will call the signals on leasing and production policies.

Oil exploration work can go ahead with certainty. Engineers and construction men have already sensed the possibilities of new business in designing and building the artificial structural islands that comprise the drilling platforms. Some have already been built off the Gulf Coast in 50 ft of water and at a cost of over a million dollars. A company has been formed on the Pacific Coast to build platforms with special caisson legs that can be installed to depths of 200 ft or more. And other designs are rumored to be on the way.

Here are two examples of why civil engineering and construction are at the same time the most exciting and the most satisfying of occupations. New opportunities lurk in almost every happening whether it be political or economic. Each shifts the horizon of activity forward. Each broadens the scope of service. Ultimately, each permits fashioning another step up which civilization advances to better standards of living.

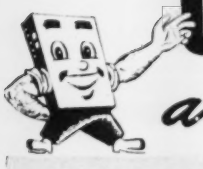
More Power at Niagara

IN A BOLD MOVE to take advantage of the added water that will be available at Niagara Falls for power under the pending treaty between the United States and Canada, the Niagara Mohawk Power Corp. has announced its intention to apply to the Federal Power Commission for a license to use that water. The corporation's subsidiary, the Niagara Falls Power Company, owns the existing plants on the New York side and operates them under a 50-year license issued by the FPC in 1921. It also owns and operates a plant on the Canadian side.

Logically, the Niagara Falls Power Co. should be given the preference when the time comes to determine what agency should use the added water for power development. Logic, however, gets little consideration in the planning of the public power enthusiasts. They can be expected to recommend that the water be allocated to a federal agency or to the Power Authority of the State of New York.

Obviously, the power authority or any other public agency to which the water might be allocated could not use the additional water as quickly or as efficiently as could the existing private company. A new agency would have to build new diversion works above the falls. It would have to construct new plants. In contrast, the existing company could put some of the water to use at once in its old plants. And it could integrate its existing diversion facilities and its modern plant with a two- or three-step development of the entire head between Lake Erie and Lake Ontario on the New York side similar to the Queenston plant on the Ontario side.

Under the provisions of the Federal Water Power Act privately owned plants can be acquired by the government at the end of the license period, if Congress decides to take that step. Hence it cannot fairly be said that to license the Niagara Falls Power Co. to use this added water would be alienating valuable rights that should be retained for public use. Actually, they will still be under public control and will be developed at no cost to the public by an agency that is a large taxpayer. Here would seem to be an excellent opportunity for the government to inject some balance and logic into its hydro power program.



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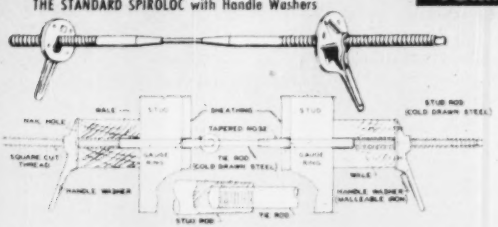
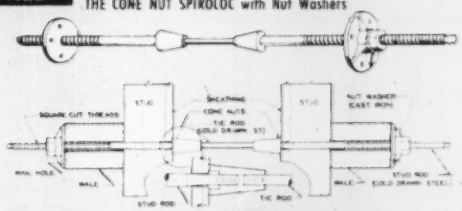
FORM TIES

THE STANDARD SPIROLOC with Handle Washers

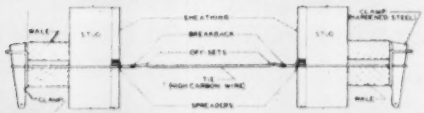


THE CONE NUT SPIROLOC with Nut Washers



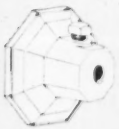
TWISTYE

A Strong Spreader Tie + An Improved Clamp

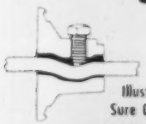


NUT WASHER

HANDLE WASHER

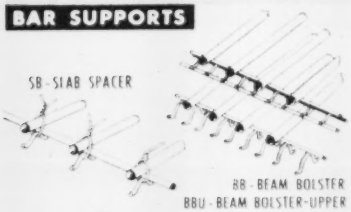


FORM CLAMPS



Illustrating the Sure Grip Principle

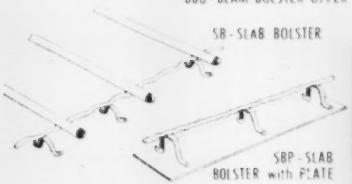
BAR SUPPORTS



SB - SLAB SPACER

BB - BEAM BOLSTER
BBU - BEAM BOLSTER-UPPER

SB - SLAB BOLSTER



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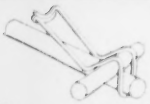
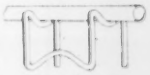
BAR SUPPORTS

HC - High Chair



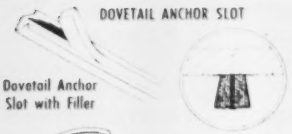
BT - BAR TIE



BC - BAR CHAIR

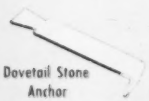
JC - JOIST CHAIR

CHC - Continuous High Chair



Dovetail Anchor Slot with Filler

Dovetail Brick Anchor-Wire

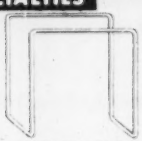


Dovetail Stone Anchor

Dovetail Brick Anchor

BUILDING SPECIALTIES

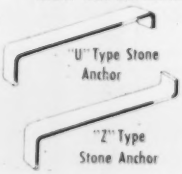
Anchor Slots and Anchors

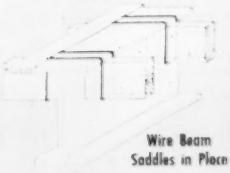


WIRE BEAM SADDLE

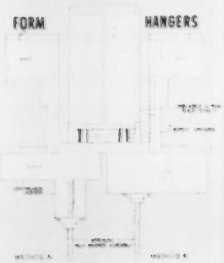
Soffit Spacer

Beam Clamp





Wire Beam Saddles in Place



ENGINEERING NEWS-RECORD

JUNE 15, 1950 VOL. 144 NO. 24

NLRB rejects Denham's plan to dispense with elections

Representation votes may be forced if board sustains appeals from "no-vote" policy—Protection assured for construction industry on unfair practice charges

Joseph Gambatese
Washington Staff

The construction industry is on notice this week that the National Labor Relations Board will not go along with its general counsel, Robert N. Denham, in waiving union shop and other elections in the industry.

The unanimous policy statement issued June 6 leaves this situation:

Contractors and building trade unions will remain protected against Taft-Hartley prosecution for unauthorized union shop practices "as long as Denham sticks to his present policy, as is his intention. Denham has sole discretion on the issuance of unfair practice complaints.

Denham may be forced to conduct some elections in the industry when his refusal to hold a particular election is appealed to the board proper. Three such appeals are pending.

The board's recent policy pronouncement is its answer to Denham's edict (ENR Dec. 22, 1949, p 23), that elections be waived in those parts of the construction industry where work is of such a fluid nature as to make it impractical to conduct an election. The one and only such election was held two years ago among five crafts in western Pennsylvania.

Denham would still conduct elections, as he has done, on long-term projects, such as dams and bridges, and in contractors' repair yards and shops. Furthermore, he says he will prosecute any closed shop practices not permitted by Taft-Hartley. No such case has been prosecuted since last June.

Denham expects to quit the first of next year. It's hard to figure what his successor would do. What happens in the fall elections may have a bearing. Chances are, a successor would follow Denham's policy because of the support it has from the industry and building trades unions—and the practical impossibility of holding most elections. On the other hand, if he wanted to force Congress to amend or repeal Taft-Hartley, he might stick to the letter of the law to expose one of its complexities.

• NLRB looks to Congress—Nub of the board's statement is that, if some part of the Taft-Hartley law is unworkable, its duty is to report that fact to Congress, "rather than to change the law ourselves by administrative exemption of a single industry."

The board recalled the admonishment it got from the Supreme Court in the Colgate-Palmolive-Peet decision last December. The board, under the Wagner Act, had improvised the doctrine that employers should not observe their closed shop contracts when it meant firing a worker who was expelled by a union for aiding a rival union at the time of an NLRB election. The board felt to do so denied the worker his right to change bargaining agents.

In the Colgate-Palmolive-Peet case, the court said it is not for the board or the court to justify a policy of Congress or to put limitations on what Congress writes into a law.

In the construction industry, the board points out that as long as Denham does not bring any cases of workers discharged or otherwise discriminated against under an unauthorized union shop practice, it will not have occasion to act. But if the occasion arises, it must enforce the law.

• Denham has support—Denham's policy has the support of the Associated General Contractors and the AFL Building Trades Dept. But it is opposed by the International Association of Machinists (Ind.), which has running jurisdictional fights with the AFL Carpenters and Operating Engineers.

The board followed up its policy statement with a decision favoring the I. A. M. in a dispute with the Operating Engineers. This dispute, involving the joint venture of Guy F. Atkinson Co. and J. A. Jones Con-

TO HELP WESTCHESTER MOTORISTS—This steel girder bridge being built over the Hutchinson River Parkway at North Pelham, N. Y., is part of a new swift short-cut between the Hutchinson River and Cross County parkways. The new highway, known as the Wartburg Connection, will be a little over half a mile long, and is costing about $1,597,000. It leaves the Hutchinson River Parkway at North Pelham and joins the Cross County Parkway at Mount Vernon. Another improvement for the Westchester parkways is just about to start—the reconstruction of 2.89 miles of the Bronx River Parkway from the Bronx to a point in Bronxville 2,000 ft north of the Cross County Parkway. Cost of this work will be $3,733,000, and it includes the building of twin roadways 34 ft wide, with seven new bridges.

struction Co., in construction of the Hanford Wash. atomic energy project, served as the basis for the hearing last December at which Denham laid out his proposal. (See below.)

• **IAM successful**—The I. A. M. has tangled with AFL unions 25 times on construction jobs. It claims to have won its point in all of them, the Atkinson-Jones decision being the last. The union also has won elections in construction repair yards involving mechanics claimed by the Operating Engineers. Precedent for this was set in the election at Strong Co., Springfield, Utah, contractor (ENR Jan. 12, p 28).

There are four cases pending in which the board may order elections in the construction industry, possibly in a few weeks. Three are appeals by the AFL Plumbers' Union from dismissal of petitions by regional NLRB directors. The fourth was sent to the board for decision by a regional officer in 1948, before Denham's current policy began to take shape. This case involves a petition for election at Ellis C. Snodgrass, Inc., Portland, Me., involving an independent union and the Operating Engineers.

The three appeals from petition dismissal:

1. An election request of the plumbers of 26 companies at Oak Ridge, Tenn.

2. An election request of the plumbers among employees of the Plumbing Contractors' Association of Baltimore, Md., and seven contractors.

3. A union shop authorization election filed by the plumbers and involving the Plumbing & Heating Contractors' Association of Ocean, N. Y.

NLRB upholds Machinists

It's unlawful to sign a closed shop contract at the start of a job.

NLRB reaffirmed this policy in finding irrevocable such an agreement signed by the Guy F. Atkinson Co. and the J. A. Jones Construction Co. with the AFL Operating Engineers at Hanford. (See above.)

The board ordered reinstated, with back pay from February 19, 1948, a member of the International Association of Machinists who had been dismissed because of his failure to pay union dues.

NLRB held the contract illegal because there were less than 125 employees out of an ultimate total of 5,400 on the payroll when the contract was signed. It rejected company and Operating Engineer arguments that the contract was justified for various special reasons.

Model building code presented to BOCA

Abridged code for small cities is complete—Joint Committee for unification agrees on fire resistance

Values of a united building code free from the confusion and evil practices associated with administration of specification-type codes of most municipalities were emphasized throughout the 35th Annual Meeting of the Building Officials Conference of America.

Convening in Indianapolis June 5 to 8, BOCA celebrated completion of its two proposed model building codes. A printed copy of the Abridged Building Code, designed for small communities, was presented to President Albert H. Bauer, St. Louis building commissioner, by Joseph P. Wolff, Detroit building commissioner. The Basic Building Code is scheduled for publication next month.

• **Five year study**—More than five years of intensive study was involved in preparing these codes. Data were correlated and prepared for publication by George E. Strehan, New York consulting engineer.

Mr. Strehan outlined the basic concepts employed in writing the code: (1) A comprehensive classification of use groups based on fire hazard; (2) classification of types of construction to incorporate new developments; (3) plan for controlled and ordinary materials; (4) performance standards; (5) evaluation of fire resistance of materials and combinations of materials; (6) height and area limitations to give a uniform degree of fire safety for all use groups and types of construction; (7) minimum safe live-load requirements consistent with functional requirements; (8) plan for coordination of inspection and control to eliminate overlapping jurisdictions. Details were published in ENR Jan. 20, 1949, p 80.

Plans were also evolved for the Building Officials Foundation, an affiliate of BOCA, to set up a central clearing house for interpretation of test data, with recommendations for their application and for compilation and standardization of research data and test procedures.

Eugene N. Smith, director of service, Wichita, Kan., who is chairman of the Code Changes Procedure Committee, recommended establishment of a code changes committee composed of building officials. At least two members should have a structural engineering background, he said, and two should have an architectural background. Proposed changes would be studied by this committee in consultation with seven subcommittees.

Following adjournment of the BOCA convention, a meeting of the Joint Committee for Unification was held. This was the sixth session of the group, which was formed to unify the requirements of the principal national codes. The committee agreed on fire-resistance requirements and nearly completed work on live loads. Previously, it had unified definitions and occupancy classifications.

$20 million contract let for Los Angeles building

The west coast's biggest postwar construction project—a $20,000,000 hotel and office building in downtown Los Angeles—has been let to contract by the Hotels Statler Co., Inc. Work is to begin July 5.

Robert E. McKee, General Contractor, Inc., of Los Angeles and El Paso, was awarded the general contract. It involves more than $15,000,000.

The 1,275-room hotel will be the largest such structure built anywhere in the last 20 years, according to Arthur J. Douglas, Statler president. It's to be done within two years. The structure will be built at Wilshire Boulevard, Seventh and Figueroa Streets.

All guest rooms and the entire office building will be air conditioned. There'll be a 475-car, underground garage, television in every room, large convention and meeting facilities and a swimming pool in a patio. There'll be 150,000 sq ft of office space.

Holabird & Root & Burgee, Chicago, and associate architect William Tabler, New York, designed the structure and will supervise Statler during construction. Consolidated Western Steel Corp. and American Bridge Co. will fabricate and erect the steel. The latter will erect the lower portion of the building. Consolidated the upper portion. Plans call for 7,200 tons of steel, erection of which should start in about three and one half months, be completed within six to eight months.

Michaels & Hanson, Chicago, Los Angeles and Washington, got the heating, plumbing and ventilating contract at $3,000,000. Stetson Electric Co., Los Angeles, got the electrical contract at $1,100,000.

Equipping, decorating and furnishing the hotel, along with certain additional structural costs required by the office building, will add between $5,000,000 and $6,000,000 to the amount of the general contract, Douglas said, raising the overall cost to more than $20,000,000.

Northwest water for Southwest deserts sought in Reclamation Bureau study

Diversion of as much as 20 million acre-ft from Columbia and other rivers to southern California is the goal

Vincent B. Smith
ENR's Correspondent

Reclamation Bureau is studying possible transfer of water from the Northwest 1,000 miles to arid Southern California.

In scope and cost, the scheme far surpasses any diversion project or aqueduct system so far considered seriously in this country.

A 20-man staff in Salt Lake City has been carrying on reconnaissance investigation for the last year. Next summer, it will have a report to help determine whether a detailed study is worth while.

• **Could be done, but . . .**—Economic feasibility is the yardstick against which all possibilities must be measured. Physically, the project is readily feasible.

Without defining what kind of feasibility he meant, S. P. McCasland, engineer in charge of the preliminary study, said recently at Salt Lake City that the investigation "has now progressed to a point where its long-range planning studies tend to establish the feasibility of ultimately transferring water from the Pacific Northwest and Northern California to water-deficient areas of the Southwest."

Northwest rivers discharge nearly 300 million acre-ft a year. Diversions from them would take only a small fraction of the surplus water remaining after maximum allowance for every conceivable future development in the Northwest.

McCasland emphasized that fact in his statement on the study project—known as the United Western Investigation. He explained that the limits of economic feasibility probably would allow the transfer southward of less than 10% of the surplus that remains after a reserve for all future Northwest consumption. Actually, other bureau engineers point out, the diversion might take less than 5% of the surplus.

• **That's a lot**—Even these low percentages could mean transfers in the range of 10,000,000 to 20,000,000 acre-ft a year. A system to handle such volumes over a 1,000-mi. route would require a huge investment. Next year's report will give some indication of this cost.

No official guesses on cost are being made now. Still, Reclamation points out that California's Central Valley project requires an investment of $500 million to handle 1,500,000 acre-ft per year over a much shorter distance.

Conservative standards are being applied to estimating future water consumption in the Northwest and to potential economic development of Southern California. Agriculture looms as a large future-water use, but prospective domestic and industrial consumption get equal consideration. For the Northwest, the maximum possible development of irrigation, industry and population is assumed. Conversely, but again conservatively, investigators have limited the vast irrigable area in the Southwest to a small portion that could show sufficient return to justify the cost that might be allotted for the project.

• **San Diego to San Francisco**—In general, this portion is made up of various irrigable lands lying in a long strip extending from San Diego 500 miles to San Francisco Bay. Other potential users—municipalities and industries—probably could afford to pay more for water than the farmers, investigators concede, but they believe that agriculture would continue to be the big water consumer. Therefore, it must foot the bill for most of the imported supply.

• **It's not simple**—Problems without number must be worked out. Not the least of them would be the legal tangles over water rights. And any plan would have made up for power loss in the Northwest. If diversion be made upstream, it would hurt hydro plants below. Should the water be taken downstream, near sea level, pumping power would then be required.

Investigators recognize that the project would have to replace any hydroelectric power it loses in the basis of origin. New power sources developed along the route of the project—hydroelectric and thermal—would have to make up for the deficit. In the present investigation, steam plants are contemplated. Local fuels, such as low-grade coals, are being seriously studied.

Another important problem involves fisheries and national or state parks. Whatever the route, a series of compromises would be necessary with public agencies and civic groups that fight steadfastly to conserve all natural scenic beauty and fish and wildlife resources.

• **Everybody's skeptical**—Pacific Northwesterners are not alone in their suspicion. Californians—the potential beneficiaries—are notably cool toward the United Western Investigation. They regard it as a vague promise—or a red herring—to distract them from their fight for California's share of Colorado River water.

Potentially, the project could deliver to Southern California far more than the state is entitled to from the Colorado. California claims about 5,500,000 acre-ft a year and the total

(Continued on page 26)

NORTH CAROLINA ROAD HEADQUARTERS—Work has begun on this $1,500,000 structure at Raleigh, N. C., to house the State Highway and Public Works Commission. It will be part of the monumental state capitol group. All drafting rooms and commission offices will be air conditioned. There'll be a 500-seat auditorium with stage. The building's to be ready early in 1952. Allen J. Maxwell, Jr., of Goldsboro, N. C., is architect. Frank P. Clarke Associates and L. E. Mooten & Co., of Raleigh, are engineers.

States open drives on water pollution

Recreation season spurs activity in several jurisdictions—Federal agency urged to leave abatement to states

With the approach of normal heavy use of recreational aspects of water supplies, many states began more intensive drives to clear their streams of pollution last week.

At the same time, state sanitary officials had served notice on the federal government that they consider the elimination of pollution a state job, whether or not their efforts are financed by federal funds.

On the local front, the states moving toward better control included Delaware, where the state Water Pollution Control Commission set itself a two-point goal: The establishment of general rules that will require submission of plans to prevent new pollution by new industrial plants, requiring permits for the right to continue discharge of wastes into state waters.

At Pierre, S. D., under urging of the South Dakota Reclamation Association, a water policies commission was formed, under Dean A. M. Eberle of the state college at Brookings, to present recommendations to the President's Water Resources Policy Commission. In New York State, the Water Pollution Control Board scheduled the first of seven meetings for this week at Buffalo as a preliminary to setting up statewide water classification system under which pollution control order would be issued.

As part of continuing programs, San Jose, Calif., voters approved a $3,000,000 bond issue to pay for a treatment plant that will bring the city into line with orders of state health authorities. And in Pennsylvania, the state Sanitary Water Board refused to approve a delay in compliance requested by a number of municipalities along the Susquehanna and Juniata Rivers. Answering the municipalities' plea of insufficient funds, the water board said, in effect, that other communities had managed to surmount the same problems, and the river cities in question must do the same.

• **Hands off.** The declaration of state jurisdiction in pollution control matters was a dominating theme of a Washington meeting of state sanitary engineers.

With officials of the U.S. Public Health Service led by Carl E. Schwob, chief of the USPHS Water Pollution Control Division, and himself a former state official (Illinois) in attendance, the state men made their meaning clear in no uncertain terms.

"Abolition of water pollution is the job of the states," said B. A. Poole, director of Indiana's Bureau of Sanitary Engineering. "It is part of the states's police powers. The Federal government should step in only when the states can do nothing among themselves." Other speakers added that direct federal control should be limited "to the national interest."

State officials took advantage of the meeting and the presence of USPHS personnel to register another complaint—they are not in the least happy with attempts of the federal organization to recruit technicians of all types for its service. Several charged that, despite the intent that the national organization would train men for state service, it has in fact reversed the trend. Taking state-trained men for its own programs.

HANGIN' OFFENSE IN NYC

George Cropper, of Muncie, Ind., was digging a garage foundation some days ago, and it's a mighty good thing he was.

Cropper discovered a 400-gal. per hr. leak in the city water system. It had been flowing for 45 years—since some one tore down a house that once stood on the site. No one remembered to turn off the connection then. So the water has been flowing since—into the sewer through a drain in the old foundation.

Survey water diversion from Northwest to Calif.

(Continued from page 25)

volume of that stream—before any diversions—averaged only a little more than 17,000,000 acre-ft consumption a year.

Eventually, Arizona and other Colorado River basin states might benefit from the west coast project. If California got the water she needs from the Northwest, she might relinquish some of her rights to Colorado River water, leaving more for other beneficiaries. That possibility is far in the distant future, but it probably would be a determining factor in getting Congressional approval of the transfer.

Because of these widespread implications, the Upper Western Investigation takes in eleven states from Washington and Montana to California and New Mexico. But the main engineering and economic study of the water transfer system is possible locations, dams and auxiliary works. Of natural channels that would "fit into such a system, the Sacramento River is one major stream that offers both good location and capacity.

California sewer row brings new sentences

Second group of city officials in six months gets fines and jail terms for failure to pay sewer assessment

For the second time within six months, Los Angeles Superior Court Judge Joseph Vickers has fined and sentenced a mayor and city officials for contempt in their failure to pay the city's share of the Los Angeles Hyperion sewage treatment and outfall line.

This time it was J. Ray Klats, mayor of Culver City, and William G. Douglas, Thomas J. Carroll, Arthur Segrell and Curtis J. Davis who were each fined $500 and sentenced to five days in jail. Douglas and Segrell are ex-councilmen, while Carroll and Davis are still in office. No one has been jailed as yet.

The case was brought by the State of California to enforce a court order of February, 1946, ordering Los Angeles and 10 tributary cities to rebuild the ocean-contaminating sewer outfall then in use. Culver City was ordered to pay $1,170,965 of the $41,000,000 project. The defendants attempted to declare the court-order invalid and supported their refusal to pay on the grounds that the city had a 1922 contract with Los Angeles permitting Culver City to use the outfall sewer. While the trial was under way they began action in another superior court seeking to establish the validity of the 1922 contract with Los Angeles.

Judge Vickers ruled that the existence of such a contract was no defense in view of the great emergency created by beach pollution. He held that the city should have paid its share with the proviso of a rebate in case its rights under the contract with Los Angeles subsequently were upheld in court.

The Mayor of Vernon, Calif., and five councilmen were convicted of contempt under the same charge last January and have appealed. There has been no decision as yet.

The Culver City defendants were granted a stay of execution to June 26, during which time Atty. Edwin L. Searle said he would appeal the decision.

Culver City Attorney Michael Lefevre's request that he be permitted to shoulder the penalty because the defendants acted on his advice was turned down. "There is no way in which you could have complied with the order and therefore you cannot be held in contempt of it," Judge Vickers told him, refusing flatly to let him assume any responsibility for satisfying the sentences.

CONSTRUCTION BUSINESS

High demand unsettles few prices

Sharp price rises that started on lumber, copper, and steel scrap in March show a few signs of easing off.

But materials demand will stay high as long as construction contracts boom. For example, the current record-high construction volume had its first real impact on the materials market in March.

But many materials—cement, brick, roofing, paving—are still in fair to good supply generally, and prices are mostly stable (see ENR June 1, p 23).

Here is *how* industry experts view the lumber, steel, and copper markets:

• **Lumber tighter than ever**—Lumber mills are turning away orders. Supply and demand can not be measured, because orders-production indexes are invalidated by three things: (1) mills don't count the orders they turn down; (2) marginal producers are now shipping unmeasurable millions of board feet a week; and (3) Weyerhaeuser Timber Co. is out of the market because of strikes.

Prices are still on the upgrade, but some industry spokesmen noted the first sign of easing last week. Small-scale builders without commitments are showing signs of worry over high prices. California lumber demand is off a bit; in New York, inquiries for green fir dimensions are down.

Whether last week's let-up is merely a pause, or the start of a leveling off, no one can say. Some barometers to watch are: (1) how dealer sales of "transit" shipments are going; and (2) prices of green fir dimensions. On transit shipments the dealer orders carload shipments before he gets a buyer; he sells the lumber while it is en route; weakness in demand for the lots in transit may worry the dealer into cutting his asking price. Price of green fir is volatile because most western builders take it only when kiln-dried lumber is not available; as soon as there is hope of getting kiln-dried again, they stop ordering shipments of green lumber.

• **Steel**—Composite steel scrap prices hit an all-time high of $40.92 a ton last week—up $3.67 in one week and $14.67 over the first of this year, according to IRON AGE. This pinches mill cost up and puts pressure on prices.

In spite of these costs, steel experts expect no general increase in base mill prices on construction steel. However, if mill costs rise too far, steel prices must go up.

But late last week No. 1 heavy melting scrap dropped $2 a ton at Pittsburgh. The big steel mills are holding the line. Part of the recent scrap price rise has been absorbed by the mills and part by customers through scrap conversion deals and premiums.

Demand is strong, as shown by last month's $4 a ton price hike at warehouses in most cities (ENR June 8, p 30).

Finished steel made from scrap bought at present prices already costs an average of $2.5 over December. For large mills the cost increase to date may be as low as $1, while for some small ones it may be $8 a ton.

For every $1 increase in scrap from current prices, steelmen estimate costs for the whole industry will go up roughly 30-40 cents a ton.

• **Copper**—Many consumers will be paying 24½ cents a lb for copper next month if Congress allows the 2 cent tariff to go back on.

At 22½ cents, copper is already up 6½ cents or 40% over a year ago. Demand is still not satisfied. Further upward pressure hit the market last week with the closing of Anaconda's giant Chuquicamata mine in Chile.

Far West labor talks snagged on wages

The Southern California basic trades agreement on an 8-cent raise has hit a snag. At the same time, negotiations between six Utah unions and contractors of the AGC Intermountain Branch have broken off, with a strike vote threatened.

• **Southern California**—Carpenters refuse to ratify the 8-cent raise tentatively agreed upon by representatives of six basic trades, including the carpenters. The carpenters seek to make their own deal with contractors for a 13-cent raise to $2.25. They say they need this because the formerly agreed raise to $2.20 would be "no higher than the engineers and 5 cents less than the cement finishers," according to Joseph Cimbarno, president of the state carpenters council. None of the unions in the region has yet ratified the 8-cent raise agreement.

The threatened break-off from the five other basic trades would upset the Southern California wage negotiation pact established in 1941.

• **Mountain stalemate**—Both sides have withdrawn former offers in the Utah construction wage dispute. The federal mediator reports the unions' last offer was to take a 20-cent wage increase for one year, or 15 cents now and 15 cents next year in a two-year agreement.

Contractors offer a 7½-cent raise now and another 5 cents next year, provided the contract is extended to June 1, 1952.

With negotiations halted, unions threaten a strike vote. The contractors say they will regard a strike against one company as a strike against all AGC members.

June construction costs 2% higher than May

The ENR Construction Cost and Building Cost indexes are 2% higher than they were a month ago, because of lumber and wage cost increases.

The Construction Cost index for June is 500.45 (1913 = 100), 2.0% above May and 6.9% higher than a year ago. The Building Cost index is 372.96, up 2.4% from May and 6.8% from June, 1949.

Lumber and labor cost increases drove costs to these new highs. Lumber prices in 20 cities now average $90.10 a M for 2x4s (fob city). That is 7% higher than a month ago, 15% above January 1, and 14% above a year ago. New labor contracts bring the national average for common labor cost to $1.528 an hour, 1.1% over last month, 2.9% over January 1, and 6.0% over June, 1949. Skilled labor cost now averages $2.517 an hour, 1.3% above May, 2.2% above January 1, and 5.1% above a year ago.

New England boom

Engineering construction contracts in New England are 78% ahead of last year. Five-month total of heavy construction awards through May is $231,185,000, as reported by ENGINEERING NEWS-RECORD.

May contracts totaling $55,176,000 are 55% over a year ago.

Total contracts through May are 67% public and 33% private. Compared with last year, public contracts are up 110% to $154 million, and private awards are up 36% to $81 million.

Highway construction and public housing account for most the public works contracts. Streets and roads through May total $49,327,000. Public housing totals $48,362,000, of which Massachusetts authorities let $24,692,000, Connecticut $20,549,000 and Rhode Island $3,121,000.

Large-scale private housing contracts are up 480% this year to $47,491,000 in the first five months.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 83, went to press.)

Chemical Plant Additions—Dow Chemical Co., Freeport, Tex., has just announced a five year construction program at Freeport plant to cost $30,000,000.

Apartment—Parkway Gardens, Chicago, Ill., awarded contract for housing project in Chicago to Patrick Warren Construction Co., Chicago. Estimated cost is $5,300,000. Holsman, Holsman, Klekamp & Taylor, Chicago, are architects.

Atomic Energy Project—U. S. Atomic Energy Commission, Washington, D. C., plans heavy water production plant, at Wabash Ordnance Works, Newport, Ind., to cost about $5,000,000.

Apartment—S. Patti Construction Co., Inc., Kansas City, Mo., will construct apartment in North Kansas City, Mo. for North Kansas City Development Co., North Kansas City. Estimated cost is $5,000,000. Howard L. Fisher & Associates, Inc., Chicago, is architect.

Bull Shoals Power House—Ozark Dam Constructors, Houston, Tex., the second low bidder, has been awarded a $4,745,625 contract for Bull Shoals Power House, near Cotter, Ark., by U. S. Engineers, Little Rock, Ark.

Hospital—Department Public Improvements, State of Maryland, Baltimore, will open bids July 7 for hospital at Mount Wilson State Hospital, Mount Wilson, Md. The project will cost about $4,000,000. Buckler, Lenhagen, Meyer & Vetter, Baltimore, are architects. Charles L. Daniels, Baltimore, is mechanical engineer and Sundlass, Wachman & Associates, Baltimore, are structural engineers.

Apartments and Shopping Center—Joseph L. Bionetti, Maywood, N. J., plans constructing thirty 7-story apartment buildings and shopping center to be known as Llewellyn Knolls, in West Orange, N. J. Total cost will be $45,000,000.

Sewage Plant and Sewers—City of Cleveland, O., will open bids July 7 for intercepting sewers, digestion tanks and six concentrating tanks for sewage plant. Estimated cost is $2,250,000. Havens & Emerson, Cleveland, are consulting engineers. J. C. Wenck is city engineer.

Office—The Pennsylvania Department of Property & Supplies, Harrisburg, Pa., plans office building for housing Unemployment Compensation Bureau, State Department Labor & Industry at Harrisburg at about $6,000,000. Lacy, Atherton & Davis, Wilkes-Barré, are architects and W. B. Jeffris is chief engineer for owner.

College Buildings—Yale University, New Haven, Conn., has selected Douglas Orr, New Haven, and Eero Saarinen, Bloomfield Hills, Mich., as architects to make preliminary studies for group of college buildings to cost about $12,500,000.

Research and Engineering Building—International Harvester Co., Fort Wayne, Ind., will soon let contract for research and engineering building at Fort Wayne to cost about $6,000,000. Albert Kahn Associated Architects and Engineers, Inc., Detroit, Mich., is architect-engineer.

Roads—Bids will be taken June 26, for eight major traffic relief projects in New Jersey, including sections of Trenton freeway, by the New Jersey State Highway Commission, Trenton. Total estimated cost is $8,000,000. Edward W. Kilpatrick, Trenton, is State highway engineer.

Hospital—Passavant Hospital, Jacksonville, Ill., has awarded contract to J. L. Simmons Co., Inc., Chicago, Ill., for hospital in Jacksonville at about $2,000,000. Edgar Martin, Chicago, is architect. Alexander J. Sincio, Chicago, is engineer.

Housing—Edwin Mays & Sons, Inc., Bridgeport, Conn., was low bidder at $2,824,000, when Waterbury Housing Authority, Waterbury, Conn., opened bids June 6. Albert B. Lucito & Sons, Waterbury, are architects.

Plant Addition—Kimberly-Clark Corp., Neenah, Wis., plans plant addition to cost about $2,000,000.

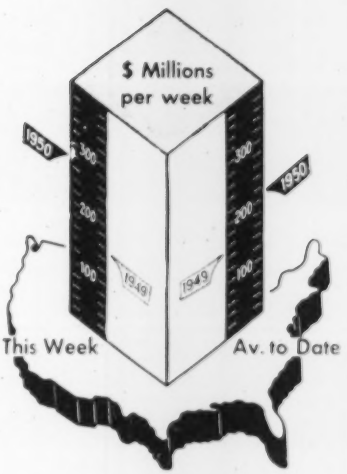
Roads—Pennsylvania Turnpike Commission, Harrisburg, Pa., awarded contract for 3.15 miles Pennsylvania Turnpike in Allegheny County, to Harrison Construction Co., Pittsburgh, Pa., at $2,236,367, and 3.94 miles in same county to Patterson Construction Co., Monongahela, at $2,422,071. R. B. Stonex is engineer for owner.

Court House Annex—Christian & Bell Co., Atlanta, Ga., will build court house annex for Fulton County, at Atlanta, for $2,145,890. Bardi & Humphries and W. J. Creighton, Atlanta, are architects.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base		1913	1913
Construction Cost	June '50	566.45	243.45
Building Cost	June '50	372.96	203.31
Volume	May '50	404	206



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of June 15 1950	Cumulative 1950 wks to date	Cumulative 1949 wks to date	% change
Federal	$23.4	$668.5	$485.0	+37
State & Muni.	73.5	1,537.0	1,347.0	+14
Total Public	$97.0	$2,206.5	$1,832.1	+20
Total Private	180.4	2,915.5	1,431.2	+104
U. S. Total	$277.4	$5,122.0	$3,263.0	+57

Contracts by type of work

	This Week	Cumulative 1950 wks to date	Cumulative 1949 wks to date	% change
Waterworks	$7.6	$169.1	$85.0	+99
Sewerage	7.0	111.3	114.1	−2
Bridges	6.5	174.9	161.2	+9
Highways	94.1	1,553.2	984.6	+58
Earthwork, Waterways	13.8	216.2	284.9	−24
Dredging: Public	27.5	867.2	708.7	+22
Industrial	19.5	455.5	445.2	+2
Commercial	127.6	2,520.2	1,623.1	+55
Unclassified	49.6	444.9	215.1	+41

NOTE: Minimum size projects included are: Waterworks and waterways, $100,000; sewerage, $25,000; other public works, $50,000; industrial buildings, $50,000; office buildings, $5,000.

New capital for construction

	Cumulative 1950 wks to date	Cumulative 1949 wks to date	% change
Corporate Securities	$342.5	$1,260.8	−22
State and Municipal:			
Bonds	302.2	95.8	+3
Housing	166.4	141.2	+6
Total Capital	$2,275.7	$2,185.9	+8

Hempstead incinerator below estimated cost

Plant will serve 125-sq mi area on Long Island—Capacity equal to anticipated 1970 conditions

Hempstead, Long Island, is looking two decades ahead as it starts construction of a refuse-disposal plant this week. It will cost the town less to do so than it had expected to pay.

Contracts, covering general construction, boiler and furnace equipment, and plumbing, have been let at about $1,220,000. Consulting Engineer Henry W. Taylor had figured they would cost more. When the plant's finished a year from now, towns in a 125-sq mi area around Hempstead will have disposal capacity adequate for 1970's anticipated conditions.

• **New practice**—The plant will have numerous engineering features uncommon to incinerator practice. Among them are: Remote control of the pit bridge crane from a pulpit on the operating floor (no "traveling cages"); single-line buckets on the crane, also remotely controlled; two enclosed tipping rooms; two separate refuse pits, one of which may be cleaned while the other's in use; submerged ash conveyor systems; and elevated ash storage with truck removal at grade.

Provision also had been made for separation of cans from furnace residue. Cans will be collapsed before disposal, which will save 45% in volume of furnace residue.

Included in the 167-acre plant site will be 120 acres for planned landfill disposal of furnace residue. Non-combustibles collected separately also will be dumped on this area. The filled land will be reclaimed for other use.

Of special interest to air pollution abatement enthusiasts is the fly-ash interception system. It'll be connected to the furnace and boiler system and followed by tubular, cyclonic dust collectors. It will be guaranteed to intercept 95% of particles above 15 micron size and 90% of those larger than 10 microns. (One micron equals 1/25,000 in.)

Boiler and refuse furnace will be equipped with induced-draft fans driven by magnetic drives for speed regulation.

• **Note the chimneys**—A brick chimney, a characteristic of refuse incinerators—will be missing on this project. Instead, there will be two short steel stacks—which will hardly be visible. They'll extend about 12 ft above the parapet. Exit velocity from them will be 60 fps. Waste heat will be utilized to produce electric power. The plant's potential is 6,000 kw.

General contract for the project is

BUILDING AHEAD—The community refuse disposal plant for the Town of Hempstead, N. Y., will serve a 125-sq mi area, with capacity for anticipated 1970 requirements. Refuse will be carted to transfer stations and trucked in bulk to the incinerator. Short stacks with induced draft replace the conventional tall brick chimneys.

Hendrickson Brothers, Valley Stream, N. Y. Contracts for heating and ventilating, electrical work, turbo-generators and accessories, landscaping and transfer stations are expected to be let within the next few months.

Milwaukee grand jury cites faulty sewers

A Milwaukee grand jury has handed up an amended report citing 16 examples of alleged faulty sewer construction.

The report held that the deficiencies "would seem in most cases to have been the result of neglect to act and a lack of diligent effort to compel contractors to comply with specifications, rather than positive malfeasance." The report also called for a city investigation, citing facilities at the city's command which are not available to grand juries.

Principal specifications of improper work accepted by the city include:

1. Tunnel walls from one to 2½ in. thinner than called for.
2. Large boulders used in backfill.
3. Mortar joints instead of Weston joints for pipelines.
4. Badly honeycombed and understrength concrete.
5. Lack of proper grade to sewers because they were built under water in violation of specifications.

In suggesting a city investigation, the grand jury report asserted:

"The city may also be in a position to take action to prevent excessive fraternization between city officials and the sewer contractors' association in the future."

Urging a city probe, the grand jury noted that the city has equipment, including laboratory facilities, which is unavailable to the jury and which "... may make it possible for the city to uncover deficiencies beyond the power and financial means of the grand jury."

Aerial spraying used to clear reservoir

Columbia Basin project site is to be cleared of sagebrush by chemicals—Time saving expected to be large

Two aircraft, 80,000 gal of a plant-killing chemical mixed with oil and 10 days are all that contractor J. W. Hudson of Yakima, Wash., expects to require to clear the sagebrush from a 20,000-acre reservoir site in the Grand Coulee gorge of central Washington.

The same job done by ground dragging would take months.

Miles of barbed wire and fence posts were removed first. Then two planes, flying at 12 to 20 ft when possible, spray a mixture of 2,4-D and 245-T in an aromatic oil, work about 18 hours daily. They carry 60 to 90 gal of the mixture, use about four gal per acre. The dried brush is to be burned in July or August. Planes use a series of three or four temporary landing strips and land to renew their spray tanks every 10 minutes.

The job, for which Hudson holds a $348,963 contract with the Reclamation Bureau, is believed the largest acreage to undergo a single spraying attack in the short history of aerial spraying. It's necessary so that the shrubbery is killed before water flows into the reservoir. Were it not killed, seeds might be distributed throughout the basin by water flowing through irrigation canals.

Water storage is to start in the reservoir next year. The coulee will serve as an equalizing reservoir for the Columbia Basin irrigation project, which hopes to put water on irrigable land for the first time in 1952, after years of activity on the project by the Reclamation Bureau.

Ground equipment will be necessary to remove trees, stumps, buildings and trash.

Maryland pollution commission wins first civil court action on abatement

Sand and gravel firm ordered to cease dumping inert solids into Indian Creek—California court ok's lease-purchase building law

Maryland's Water Pollution Control Commission won a victory in the first civil court test it undertook under its 1947 law.

The decision came in an injunction proceeding against the A. H. Smith Sand and Gravel Co., of Prince George's County, not far from Washington, D. C. Last year, the commission lost a criminal action against the same defendant in the appellate court.

Instead of granting an injunction, which might have disrupted the operation of a plant employing 1,600 persons, the court retained jurisdiction and gave the defendant his choice of using either of two specified plans for abating the pollution of Indian Creek, a tributary of the Anacostia River. In addition to the two specified proposals, the defendant is permitted to devise such other method as will meet state requirements.

• **Law not specific**—In reaching its decision, the court determined several points not specifically covered by law. These included a determination that the addition of inert material, whose only effect is to silt a stream now still, be considered pollution even though not specifically so defined. The judge got over this hurdle by finding that the clay and other materials washed out by the sand and gravel plant does render the stream unfit for bathing, for aquatic life and for self-purification. Such conditions are prohibited by the act.

Another determination by the court was as to whether the amount of pollution induced by Smith's operation was enjoinable on the basis of damage to other property owners. On this point, the court found that, although no downstream owners had complained against his activities, the state police power is applicable since the state itself is owner of the stream. The court found that the evidence indicated an outflow of 50 tons of solid material per 8-hour day. That amount, it held, is large enough to satisfy the state in seeking abatement.

The state's criteria for stream pollution by settleable solids is any amount over 400 parts per million. Smith's effluent exceed this by a large amount. No other complaint was made.

The court held, also, that the fact that pollution of the stream was being practiced by other agencies—sewer systems and sand and gravel plants did not lessen Smith's liability to enjoinment.

The Maryland commission hailed the decision as a "clear-cut and forceful backing of the . . . (commission's) efforts to clean up Maryland waters."

• **Court clears building plan**—Elsewhere in nation's courts, there were these activities:

California's Supreme Court validated a bill enacted last year to permit the leasing of state land on which private builders might erect structures for state use. Lease terms are not to exceed 40 years, and title to the buildings is to rest with the state on expiration of leases.

Effect of the ruling will be to free several million dollars worth of construction. The test case involved a $350,000 highway patrol building at Los Angeles.

The device was adopted as a means of obtaining state facilities without corresponding capital expenditures by the state. Contracts are let on the basis of the most favorable rental terms to the state after competitive bidding. Plans are drawn by the state architect. Next such project is expected to be a $5,000,000 Employment Department building in Sacramento. Thereafter a $3,000,000 Agriculture Department building is expected to follow.

• **Minimum vs. contract wages**—Texas' Highway Commission wants a rehearing on a court decision concerning minimum wages which must be paid on its projects. It lost an appeal brought by the El Paso Building and Construction Trades Council from the decision of a lower court suit. Brought by the council, the suit aimed at halting 6% overpass job where the council alleged wages would be sub-standard.

The council claimed that actual wages are anywhere from 10 to 85 cents per hour above the level posted by the commission as minimums. In holding against the council, District Judge J. H. Gardner ruled that:

1. The union had no litigable interest.

2. Union wage scales are not necessarily the legal minimum wage scales.

On appeal, the Court of Civil Appeals reversed Gardner and held that the council has a justiciable interest. The commission fixes its appeal for a rehearing on the contention that the council has a legal interest. The motion for rehearing notes that courts have denied contractors and abutting property owners the right to maintain similar suits.

SHOULD BE INTERESTING

Which is the better highway buy for the state of Indiana, blacktop or concrete?

Well, the State Highway Commission doesn't know, according to Commissioner Sam Hadden, but it certainly figures to find out. It plans to build two strips—one of each material—on a five-mile stretch between Amity and Columbus. That which stands up better automatically will be used in more contracts.

Two engineers killed on Schuylkill dam job

Two engineers for Pennsylvania's Schuylkill River desilting project were killed on the job early this month by a runaway mixer truck. They were James Byrne, of Ventnor, N. J., and Emil Larson, of Hamburg, Pa.

The accident took place at the construction site of Auburn Dam, a $2,500,000 desilting basin on the Schuylkill about six mi south of Pottsville. Byrne was chief resident engineer; Larson chief concrete control engineer.

State police said the truck driver applied the handbrake and left the cab. He walked some distance away and saw the truck start to roll. It headed for the two men, who were watching concreting operations, seated on a timber. Warnings came too late, for the truck struck the men, then rolled over a 150-ft embankment, carrying them with it.

Gen. Shingler assigned to atomic test duties

Brig. Gen. Don G. Shingler has been assigned to temporary duty as commanding general, 7th Engineer Brigade, in connection with Engineer activities on Eniwetok Island.

(Eniwetok is an atomic weapons proving ground in the Pacific Ocean. Atomic Energy Commission has been making preparations for an extensive new weapons-testing program.)

Gen. Shingler will return to his duties as Upper Mississippi Valley Division Engineer when he completes this temporary assignment, the Corps of Engineers announced. In his absence, Col. Beverly C. Snow, St. Louis District Engineer, will be acting Division engineer.

Another shift among Corps personnel sends Col. R. C. Brown, acting assistant commandant of the Army Engineer School, Fort Belvoir, Va., to Wilmington, N. C., where he'll be district engineer. He's to succeed Col. Heston R. Cole, who has returned to troop duty at Fort Campbell, Ky.

Plan loan program for new markets

Agriculture Committee studies bill for $150 million of federal credit to cities for food handling

Chances look good this week for the inauguration of still another construction program with federal backing.

It's designed to modernize and relocate terminal food markets. Present proposal is for $50,000,000 of direct federal loans and another $100 million in federal mortgage guarantees. Primarily, it's designed to do something about unnecessarily high food distribution costs. As such, the bill affects two of Congress' favorite groups—farmers and small business. This, plus the fact that there was virtually no opposition to the bill when the House Agriculture Committee held hearings on it last week, makes the program look like one which Congress will buy—next session if not this.

• **Cities are active**—At least 30 cities have drawn detailed plans for new market facilities already, with Agriculture Department help. Among them are Boston, Columbus, O., Houston, Richmond, Va., Milwaukee, Savannah, Indianapolis, Louisville and Cleveland. There are modernization programs in progress at St. Louis, Miami, Hartford and Atlanta. Greenville, S. C., and Jackson, Miss., already have built theirs—to Agriculture specifications.

In an average city, about 4,000 carloads of commodities yearly must be handled for every 100,000 residents. All too often, these goods must use ancient facilities—where streets are narrow, off-street parking is not to be had, modern equipment can't be used. The effect on costs of such markets as these is tremendous. In Chicago, it costs about $75 per car to move produce from the freight car to the market and onto retailers' trucks. Well-designed chain store facilities at trackside do the same job for $9.

• **Savings can be large**—Agriculture has compiled some figures on savings which could be realized—over and above annual charges. Here are some of them:

Hartford, Conn.: Cost $1,125,000. Estimated savings $150,000.

Atlanta, Ga.: Cost $1,000,000. Savings $384,000.

Houston, Tex.: Cost $1,750,000. Savings $270,000.

Boston, whose existing market is directly in the path of the circumferential highway now building, has one of the largest projects now underway. Plans call for a $14,000,000 terminal market—to handle 4,000 carloads a day, service 2,500 trucks simultaneously and serve 460 wholesale houses.

ALMOST DONE—The new Tacoma Narrows Bridge, successor to "Galloping Gertie," which collapsed into Puget Sound in 1940, is to be open by Labor Day. Steel roadway was completed this month; roadway concreting, now proceeding on top of the steel, will correct vertical curvature. (Wide World Photo)

Research needed for air pollution law

California can't now revise its air pollution control law because it hasn't enough technical knowledge to do so.

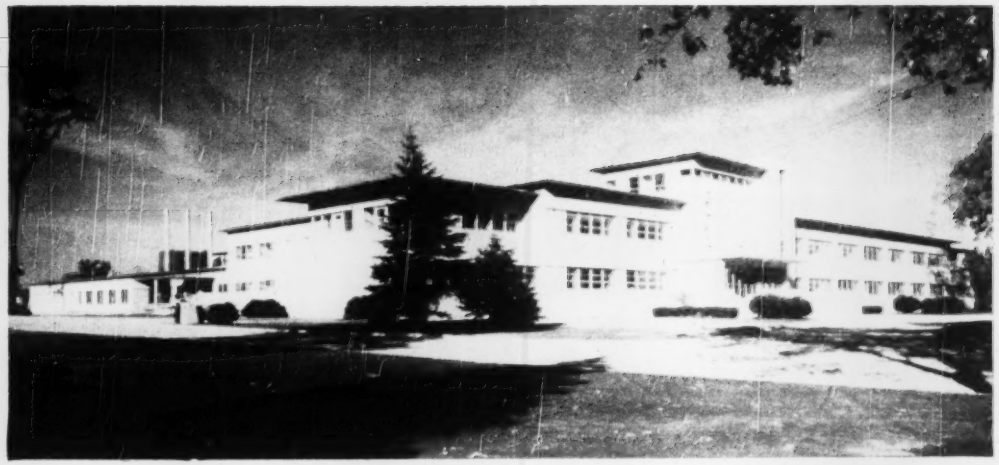
That was the finding of an Assembly committee, which recommended research into the cause and effects of air pollution. After hearings in cities throughout the state, the committee reported that it's a statewide problem, and one which causes economic damage as well as a hazard to public health.

• **Law hasn't worked**—Existing law, the committee noted, has been applied only in Los Angeles, where it's been ineffective. On the insistence of Los Angeles officials that there'd be improvement in time, the committee recommended no changes.

The committee asserted that Los Angeles now bears responsibility for its air pollution conditions. This arose from insistence of officials there that a measure proposing a $150,000 state appropriation for comprehensive air research be withheld. They said an equivalent program would be started by local agencies by next month, and that the state program was therefore unnecessary.

• **Incinerator a problem**—Meanwhile, in Los Angeles, one of the factors which contributes to air pollution there was being attacked again—the two-year old, $1,000,000 municipal incinerator.

The city will seek bids from manufacturers on putting the plant in satisfactory operating condition. The plant, which was accepted by the city and approved by the Air Pollution Control District, was bought on a 10-year, monthly installment plan which was to have been met by payments from licensed rubbish collectors using it. Such fees haven't been sufficient so far because the plant has been shut down for long periods and has never operated at capacity because of numerous difficulties.



Portland Cement Association builds a $3,000,000 laboratory dedicated to . . .

Better Concrete through Research

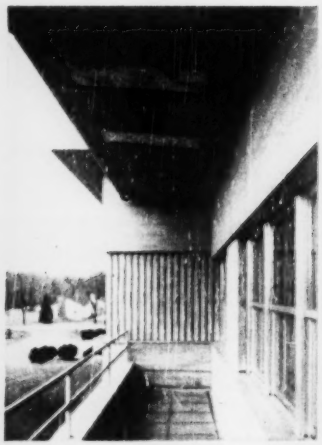
Dedication of the Portland Cement Association's new laboratories (June 8) may well mark the beginning of a new era in concrete research and development. Located in Skokie, Ill., 16 mi northwest of Chicago's Loop, the $3,000,000 project represents the latest thinking in laboratory layout as well as the most modern practices in concrete building design and construction.

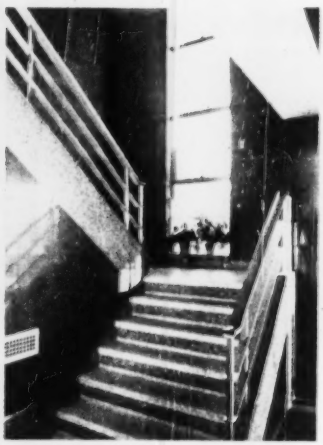
Controlled conditions of temperature and humidity in the 30 laboratories and control rooms will permit the testing of concrete and aggregates under extreme conditions—colder than the Arctic, hotter than the Equator, drier than the Sahara and wetter than the Amazon Valley. The laboratories have been in partial operation since last November.

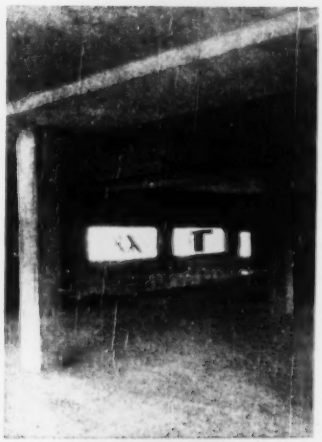
The laboratory group consists of two buildings and contains nearly four times as much working space as PCA's 24-year-old laboratory in downtown Chicago. Space units are correlated to insure a smooth flow of materials, while the vast array of modern testing equipment should inspire any researcher to greater efforts.

Precision equipment can measure to 1/100,000 of an inch, or weigh to 1/10,000 of a gram. A specially designed 1,000,000-lb compression machine can test the strength of concrete specimens 30 ft long and as much as 10 ft wide.

• **Will speed research**—Realizing that too much time often elapses between the conclusion of laboratory experiments and their practical application,







EXTERIOR FINISH is plain concrete with decorative reeded piers separating aluminum window assemblies (at left), while terrazzo, cast stone and aluminum railings in the lobby (at right) lend a pleasing and sharp contrast to the concrete masonry walls.

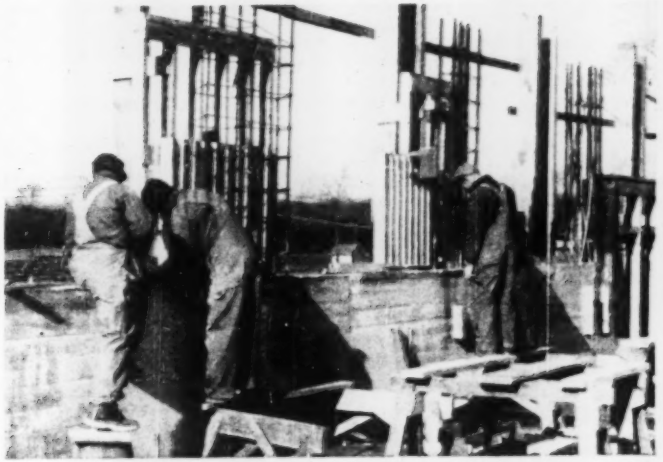
WIDE, shallow girders characterize the framing. The floor slab here is broomed to receive a traprock concrete topping.

one of PCA's objectives is to cut this time-lag to a minimum. Facilities of the laboratories will permit both larger-scale experiments and expanded research in cements, soils, aggregates and all phases of cement concrete.

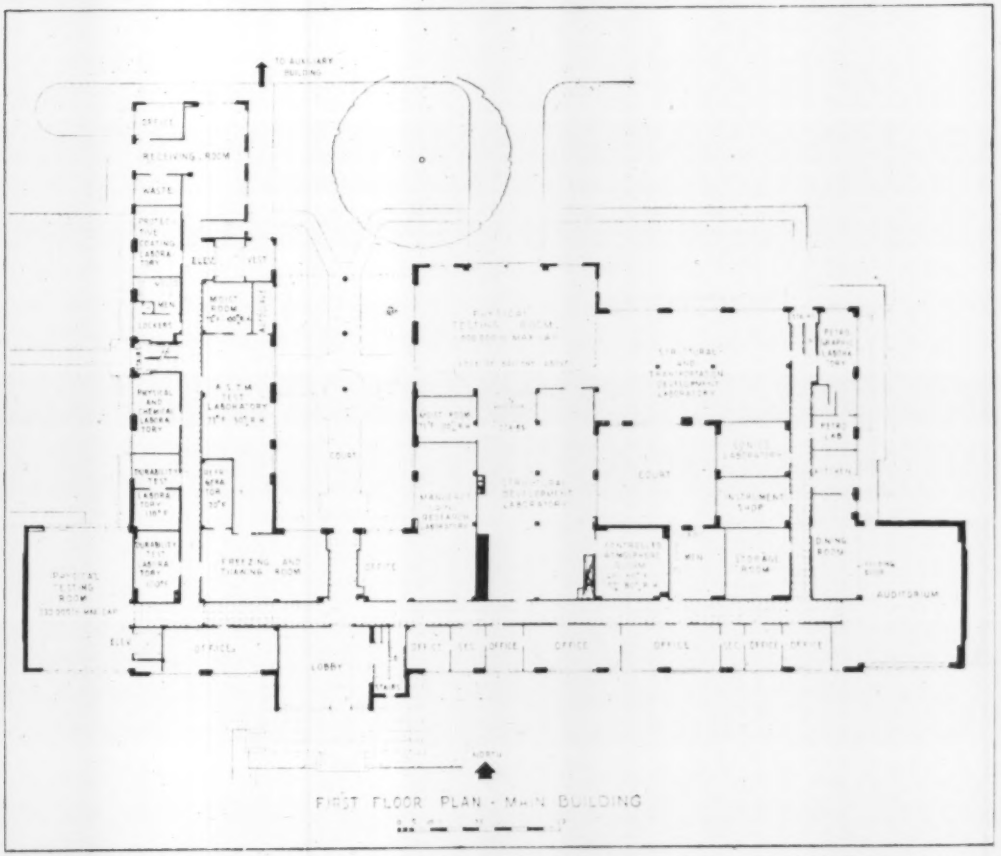
One laboratory, for example, can reproduce actual industrial processes in the manufacture of cements, aggregates and concrete blocks. Soils will be tested in triaxial compression machines and a consolidometer, in the soil mechanics laboratory. Research in the transportation division laboratory will cover soil cements, cement-treated bases, and concrete for roads, streets, railroads, airports, canals.

The durability of concrete specimens will be tested by supersonic methods in one laboratory, while completely equipped physics and analytical chemical laboratories will contribute other modern touches to cement and concrete research.

• **Building details**—Both buildings are



WORKERS erect plaster waste molds, used to form the reeded piers of the laboratory. Molds were not removed until all construction operations that might mar the surface were completed.



THIRTY LABORATORIES and control rooms in both buildings were laid out for minimum materials handling and maximum operating efficiency. Offices in the main building maintain close liaison with all research activities.

of architectural concrete and concrete masonry construction throughout. They are connected by an underground pipe tunnel and a concrete-canopied walkway. Aluminum is used in window assemblies, screens, stair railing, and for a small amount of exterior trim. The main building, containing 80,000 sq ft of usable floor space, is two stories plus basement and penthouse. It is roughly an E-shaped structure with wings extending to the rear, and connected to each other.

The auxiliary building is one story without basement, containing 18,000 sq ft of floor space. Its principal purpose is for the storage and processing of cements, aggregates and soils. Some of these operations require high temperatures and relatively heavy or dust-raising industrial machinery; consequently, the building is equipped with overhead cranes and has dust-collecting equipment on its roof. A wood-working shop, small garage and boiler room also are located in this building.

The main building houses the offices and laboratories of the various research and development sections, including their related temperature, humidity, chemical and physical testing rooms. It also contains a small cafeteria, a technical library, auditorium, conference and reading rooms and a machine shop.

• **Designed to fit needs**—Similar to industrial plant layout, the functional requirements of the laboratories were determined first, then the buildings were designed to fit them. Logically, structural concrete was chosen for the main material, with partition walls being either cast-in-place concrete or concrete masonry. Both buildings have bearing walls. They are supported on spread footings in the auxiliary building, and on concrete-filled corrugated steel-shell piles in the main building. The largest piece of testing equipment, the 1,000,000-lb compression machine sets on a 260-cu yd articulated concrete base, supported on 27 piles driven to a 30-ton resistance.

• **Reeded piers for beauty**—Exterior walls of the auxiliary building are 12 in. thick. Those in the main building are 11 in. Large windows are provided in the main building, flanked on each side by 8-in. thick reeded piers, stepped back 3 in. from the outside face of the concrete walls. These reeded piers, which were cast in wood or plaster waste molds, relieve the monotony of plain surfaces. Wide, shallow girders are used to give ample head room, good ceiling effects and free run for ventilating ducts.

• **Special form boards**—Exterior walls were formed with center-matched Oregon fir boards, which left distinctive grain markings and a pleasing texture, neither too smooth nor too rough. They were cleaned down with a grout containing some white portland cement—applied with a stiff bristle brush, worked in with a cork float and rubbed down with burlap.

Interior walls—mostly cast-in-place in the auxiliary building and concrete masonry in the main building—have several finishes. Some are left unpainted; others, particularly office, lobby, auditorium, and corridor walls, are painted with a wide variety of colors.

Walls of the laboratories for controlled humidity are covered with a bituminous seal coat and two coats of aluminum asphalt base paint. Walls in the kitchen and moist rooms were finished with portland cement plaster. Cast stone was used effectively in the lobby, front stairway, toilets and shower rooms.

• **Rustication lines**—Control joints are spaced 22 ft apart or less in all walls. On exterior walls beveled joints (*rustication lines*) were provided for this purpose, as well as for decorative effect.

The vertical rustication lines were spaced to permit the forming between panels of continuous control joints extending from bottom to top of the building. The horizontal rustication lines were spaced to permit re-use of panel forms, with only slight alterations after each lift.

Panel forms, made up of 1x8-in. center-matched Oregon fir boards on 2x4-in. vertical studs spaced 16 in., varied from 6 to 10 ft high and 8 to 16 ft wide. All form lumber was dipped in "emulsified stearate" to reduce shrinkage and prolong its life.

• **Special wall anchorage**—An interesting practice was the use of ceiling anchorages to give lateral stability to interior concrete masonry walls. A series of 2½x1-in., 14-gage, steel angles was fastened to the ceiling with nail-type anchors set by a powder-driven fastening tool.

The wall-bearing design of the buildings called for placing of spandrel beams integrally with the floor slabs. It was realized that the intersecting of deck and spandrel steel would make it extremely difficult to place a low-slump concrete in the piers and interior columns below; consequently, these supporting members were placed first.

This not only expedited the concreting but also eliminated the tedious job of cleaning around the deck reinforcing steel since it was not yet assembled when the concrete was being placed in the pier and column forms.

All interior columns are square or rectangular, formed with ¾-in. plywood. There are 6 exterior round columns, three of which support a concrete slab canopy covering the walkway between the two buildings.

• **Paper forms for columns**—The other three columns were cast in conventional steel forms, but the three canopy columns were cast in paper tubes to give a pleasant decorative finish. The paper tubes were strong and rigid enough to permit casting the 13½-in. diameter, 16-ft columns without lateral bracing.

Floor slabs in working areas have a concrete topping containing traprock coarse aggregate. In the auxiliary building, where the floors were placed in one course, the traprock screenings were spread on the surface and worked in with power floats.

For the floors in the main building, which were placed in two courses, a cement-sand grout was spread first on the base course, then a stiff traprock concrete was applied. It was tamped, rolled by hand and power-floated to an even surface about 1-in. thick, then finished with trowling machines. A 12,000-psi concrete at 28 days resulted.

Floors in executives offices and corridors are covered with asphalt tile. Those in the lobby and rest rooms have a terrazzo finish.

• **Some radiant heating**—The buildings are heated with a hot water system from one gas-fired and two oil-fired boilers. In addition, the aggregate processing room in the auxiliary building has radiant heating in the floor for fast drying of aggregates while in storage.

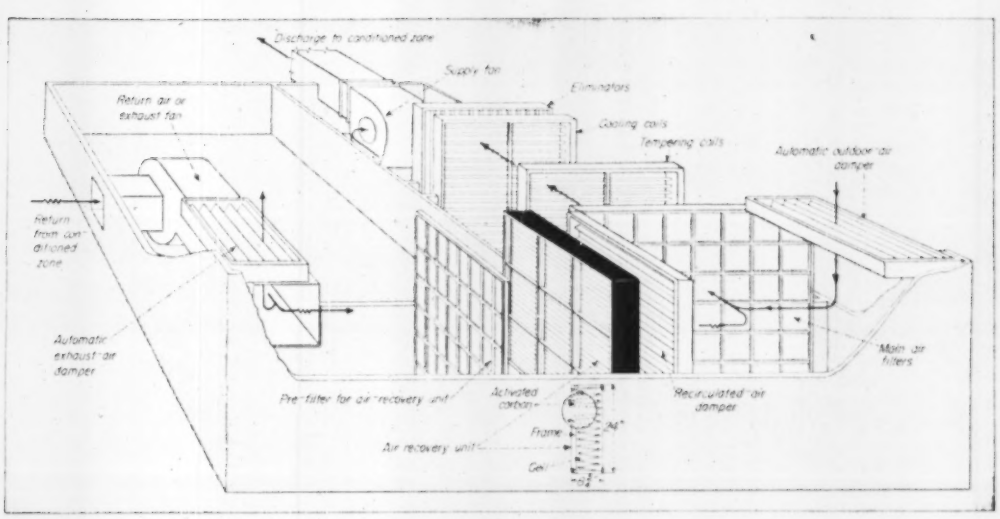
All office lighting is fluorescent, most of which is recessed in the ceilings. Electric eyes mounted at the entrance to the laboratory site warn of any intruders after dark.

Roofs of both buildings are cast-in-place concrete, insulated with 2-in. of Foamglas, covered with tarred paper and crushed stone. Fire doors throughout the building protect spaces containing combustible materials.

• **Men in charge**—Dr. A. Allan Bates, vice president for research and development, is in charge of the laboratories, reporting to Frank T. Sheets, president of PCA. H. F. Gonnerman is Bates' assistant. Miles D. Catton is director of development, and Hubert Woods is director of research.

Carr and Wright, Chicago, were architects on the project, and the Turner Construction Co., of New York City, was the general contractor.

BUILDING DESIGNERS' LIBRARY



AIR-RECOVERY UNITS remove odors from recirculated air in an air-conditioning system, minimize exhaust of tempered air.

Planning for Deodorizing Equipment

J. H. Bartol
Director, Air Recovery Division
W. B. Connor Engineering Corp.
New York, N. Y.

THE TECHNIQUE of taking odors out of the air by passing it through activated carbon has developed to the point where it is becoming an important aid in air conditioning.

Installation and operating costs for both heating and cooling of buildings would be considerably less if, once the the air has been conditioned, it could be continuously recirculated. This has not been possible—not because the oxygen content would be exhausted but seepage of air drawn in to offset such infiltration will contain more than enough oxygen, but simply because odors eventually make the atmosphere stale and vitiated. Some of the conditioned air must be regularly exchanged for odor-free air.

Often, the necessity of heating or cooling large quantities of new air is responsible for a sizable part of the cost of a conditioning plant. Carefully processing air at considerable expense and then exhausting it shortly thereafter is wasteful. How wasteful it is can be appreciated fully when it is recognized that only a few parts of odorous substances per million parts of air are enough to contaminate an entire atmosphere.

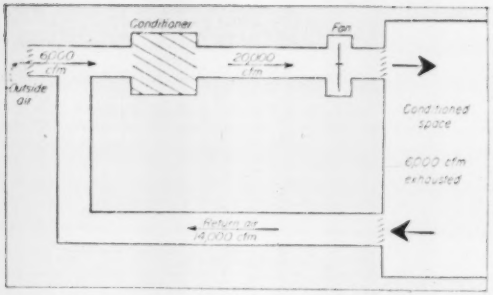
• **Air recovery cuts costs**—With activated carbon to rid room air of odors, this same air, already at the right temperature and humidity, can be used to supply ventilation requirements, thus conserving the energy invested in it. An air-recovery unit of activated carbon capable of converting 1,000 cfm of stale, odorous air to fresh air does the work of 2.5 tons of installed refrigeration capacity and 50,000 Btu per hr of installed boiler and radiation capacity for heating. It is further estimated that each such unit saves 1 kw per average operating hour during the cooling season and 4 gal. of fuel-oil per average heating hour (Table II).

Activated carbon is carbon that has been treated to give it high porosity and surface area; each grain becomes honeycombed with countless submicroscopic pores or crevices. As gases and vapors (smells) strike these surfaces, they are absorbed, condensing and clinging stubbornly to the carbon. This process may be continued until the total weight of the impurities is about 20% of that of the carbon. When this point is reached, the carbon may be reactivated, that is, the condensate driven off and the original adsorptive capacity restored. This cycle may be repeated many times.

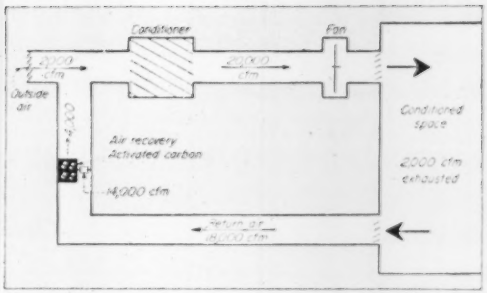
If air recovery is utilized to the full-

TABLE I—FRESH-AIR REQUIREMENTS FOR ODOR-FREE ATMOSPHERE

	Room Space Cubic feet per person	Fresh air—cfm per person
Private Office or Home	1000 and over	30
General Office	500 to 700	15
Conference Room or Game Room	250 to 300	30
Average Specialty Store	400 to 500	15
Department Store	300 to 400	20
Bargain Basement	200 to 250	25
Restaurant (Quality)	300 to 400	25
Restaurant (Average)	200 to 300	30
Night Club or Bar & Grill	125 to 200	40
Theatre or Auditorium	200 to 300	15
School (Children)	200 to 250	30
School (Adult)	200 to 250	20
Hospital—Operating Room	1000 and over	40+
Hospital—Private Room	750 and over	25
Hospital—Ward	350 to 500	30
Hospital—Public Clinic	200 to 300	35



BEFORE—A conditioning system supplied 20,000 cfm of air, of which 6,000 cfm of the return air was exhausted.



AFTER—Activated-carbon units were installed to remove odors, cutting the exhaust to 2,000 cfm.

ent extent, it is entirely possible to limit outside air intake to the volume required to counteract infiltration. However, where smoking is anticipated, a certain amount of make-up air will be needed to dilute the visible smoke haze. While the irritant gases of tobacco smoke are removed by activated carbon, the smoke particles, being solids, are not absorbed.

• Space a vital factor—While the number of occupants in a room and their metabolism is taken into account by the air-conditioning engineer in his computation of heat loads, the effect of space per occupant upon the ventilation factor is not always fully appreciated. Odors generated by body, apparel, perfume and food are constant whether a person occupies a small or large space. Therefore, the less space per person in a room the more ventilation air needed to maintain an odor-free atmosphere. Table I gives the fresh-air requirements for various types of occupancies.

Air that has passed through activated carbon should be considered "fresh" air. Often, it is purer and of better quality than air that is drawn in from city streets. The process simply removes extraneous odors without affecting the physical or chemical properties of the air. In the average installation, it is usually necessary to purify only a part of the return air, the balance being by-passed around the unit.

• Device occupies small space—The most efficient type of air-recovery equipment is the recently introduced cell unit. This device has the same overall dimensions as a standard dust filter—24 x 24 in. by 8½ in. deep—and is installed and removed in essentially the same way. Each cell is enclosed in a supporting frame for riveting to duct or casing. When one unit is not adequate to meet ventilation requirements, two or more can be used.

The "accordion-pleat" construction of the filter element provides a face area of 28 sq ft. Odor-holding capacity is over 5 lb.

• Sea-food odors removed—A good example of the advantages of air recovery is an application of air-recovery cells made by a Chicago hotel. The hotel management decided to open a sea-food restaurant adjacent to its night club. They found, however, that the existing central air-conditioning plant was handling close to its peak load and that it was practically impossible to find space for more equipment.

The ventilation problem was finally solved by taking used air from another area of the hotel—air that, though stale and vitiated, was at the proper temperature and humidity. This air was put through activated-carbon cells.

In this manner, it was possible to supply about 1,000 cfm of fresh, odor-free air to the new restaurant. Net saving, compared with the cost of the heating and cooling equipment that would otherwise have been required, estimated to be more than $4,000. And $800 is expected to be saved annually on operating costs.

TABLE II—COST COMPARISON

Conditioning Outdoor Air vs Recovering Air

Assumed Conditions			
Cooling Season (10 hr day)	1,200 hr @ average ½ load		
Heating Season (14 hr day)	3,000 hr @ 70% efficiency		
Cooling Equipment installed	$300.00 per ton		
Heating Equipment installed	$2.50 per 1,000 Btu		
Power Cost	$0.02 per kwh		
Fuel Cost	$0.08 per gal		
Air Recovery Equipment	$137.50 per 1,000 cfm		
Per Annum Cost to Condition 1,000 cfm Outside Air			
Cooling Equip—2½ tons @ $300.00		$750	
Heating Equip—80,000 Btu @ $0.0025		200	
		$950	
Power Cost—1½ hp = 1 kw = 1,200 hr @ $0.02			$ 30
Fuel Cost—1½ gal @ 3,000 hr @ $0.08			120
Water Cooling—Evaporation Loss & Pumping Cost			19
			$169
Per Annum Cost to Recover 1,000 cfm Recirculated Air			
Air Recovery Cell		$138	
Shipping & Installation		40	
		$178	
Carbon Reactivation Service (Maintenance)			$ 25
Shipping & Labor			8
			$ 33
Capital Cost Saving		$772	
Yearly Operating Cost Saving			$136

ELEMENTARY SCHOOL for Richfield, Minn., has extensive windows on south side to obtain natural light for classrooms.

Finger-Plan School Saves Light, Heat

Easily adjusted to the needs of students, a school building whose "finger plan" layout results in lighting and heating economies has been put in service in Richfield, Minn.

Like most suburban areas (it is located on the southern edge of Minneapolis), Richfield has been growing rapidly, leaping to its present estimated 20,000 population during and after the war. A new elementary school was a necessity—but it had to be be built within the financial limitations of the community.

So the community called in the Minneapolis architectural firm of Long and Thorshov, Inc., to look over the situation and make recommendations. The problem was this: A central elementary school was to be built, to supply classroom and other needed space for a capacity of 510 pupils—six elementary grades and a kindergarten. Additionally, there had to be space for a library, kitchen, cafeteria-auditorium-gymnasium, offices, a health unit, and toilet and service facilities.

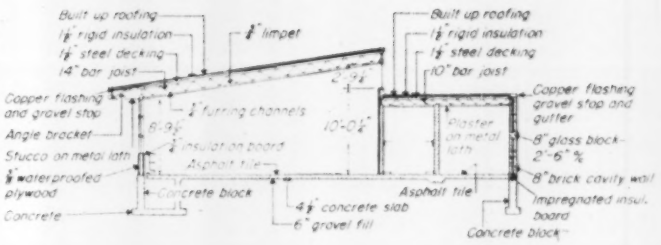
• **Results**—A study of the facilities to be provided, the site, the community, and most importantly—the need of the children for an environment that would provide a proper transition from home to school, resulted in a simple, well integrated, one-story structure. The total cost, including a septic tank sanitary system and a deep well but no landscaping, land and fees, was $416,325, or $0.81 per cu ft.

The building has concrete-block foundation walls, standing in trenches dug by a trenching machine, and a concrete floor slab at grade, topped with asphalt tile. The structure above grade is a light steel frame, with brick exterior walls, open-web steel joists and a standard built-up roof on corrugated steel decking. Doors and sash are of wood; windows are single glazed.

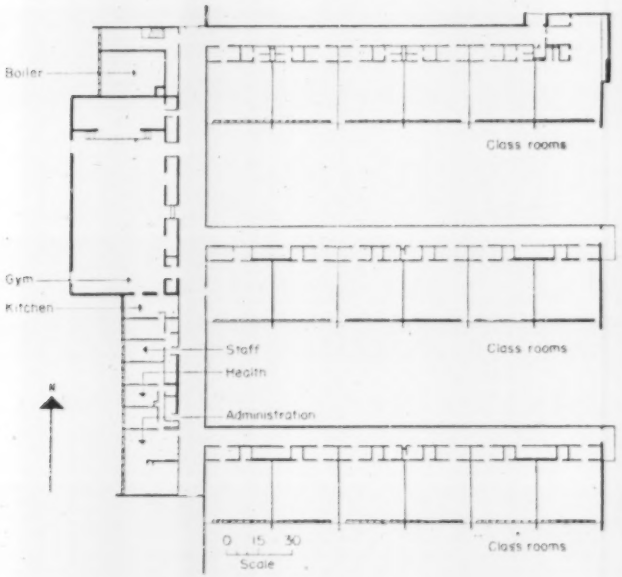
The building has a combined warm air-radiation heating system, the air being circulated through ducts in the floor slab. The architects report that average cost of heating the entire 38,500-sq ft structure is about $5 on a typical winter day.

Large window areas on the south side provide maximum natural warm light in the classrooms—light that may be controlled by venetian blinds. A continuous clerestory unit on the north side adds to the natural lighting.

Artificial lighting provisions include a continuous metal light cove with alternate 150-watt spots and 300-watt floods, fixtures being indirect.



DETAILS of construction show simple, cost saving devices used to provide an acceptable, architecturally pleasing structure.



LAYOUT of the new school takes advantage of a roomy site to give each classroom proper orientation for light and integrates administrative sections.

Bay Outfall To Serve Six Cities

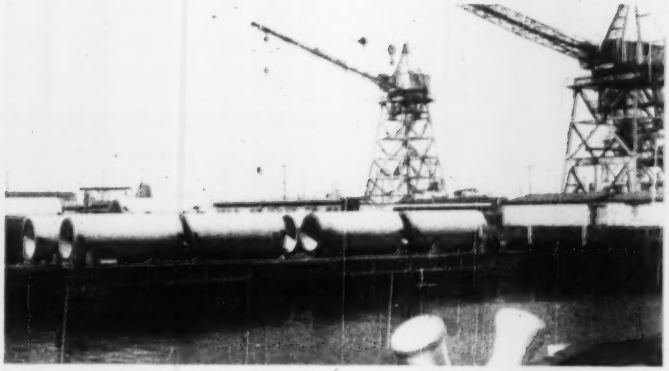


FIG. 1. PIPE IS LOADED on barges by revolving cranes at a wartime shipyard. This barge has ten 24-ft sections on it. Usual load is twelve. A barge fleet was required for the offshore work, including much barge-mounted lifting and digging equipment.

One mile under the sea and two miles under land . . .

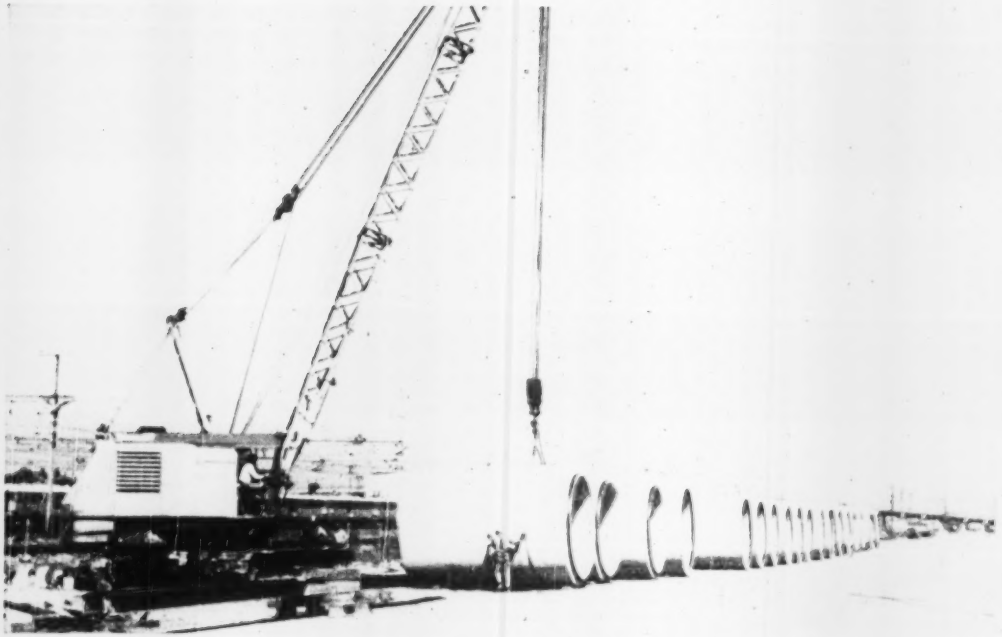


FIG. 5. THE LAND SECTION of the outfall line includes two miles of this 108-in. diameter concrete pipe, put down in trenches that had to be carefully built because of heaving of the soil and seepage from the bay nearby. Heavy wood sheating was put down before the pipe placement could start. Wood pile bents were driven to carry 18-in. thick concrete slab that supports pipe.

Two distinct construction techniques [illegible] aligned in the bottom of the bay [illegible] grade of sewerage construction and are involved in building a three-mile [illegible] The first part involves heavily [illegible] sewage treatment for Oakland, Alameda, Berkeley, Albany, Emeryville outfall to serve six San Francisco Bay [illegible] sheeted trench while unique methods [illegible] and Piedmont (ENR Sept. 15, 1949, p area cities. That's because the line [illegible] are used to place sheeting and select [illegible] 38). This single line will replace more includes two miles of 108-in. dia. pipe [illegible] till, the second is almost entirely a [illegible] than 50 separate outfalls discharging on land and one mile of 96-in. dia. barge-and-diver job. [illegible] raw sewage into San Francisco Bay. pipe that extends into deepwater. [illegible] This is part of a $25,500,000 proj-

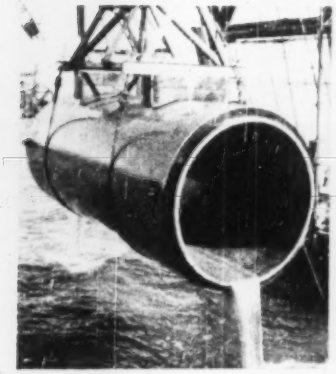


FIG. 2 OFF THE BARGE and into the water of San Francisco Bay goes a pipe section, ready for addition to the line.

FIG. 3 JUMPING into shallow water (up to 25 ft) divers worked on underwater sections. Four divers were used here.

FIG. 4 Joints on subaqueous sections include pivoted bolts for seating under water. Wood strips protect joint facing.

. . . new sewer outfall will serve six densely-populated communities on San Francisco Bay

FIG. 6 FIRST PART BUILT was the transition section joining subaqueous and land portions of the line. The section was formed on a barge, poured under water.

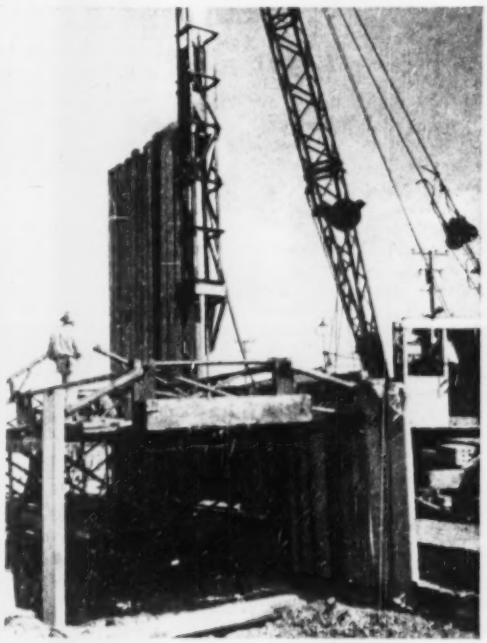


FIG. 7 TRENCH WORK on the land section was aided by a rubber-tire mounted lagging frame to hold sheeting at accurate alignment until it was halfway down.

It will convey effluent to the primary treatment plant designed for 105 mgd average flow, which may eventually be expanded to 270 mgd capacity.

• Joint design—Most important design feature in such underwater outfalls is the joint between pipe sections, particularly where the line is exposed to wave or tide action. Leaky joints have made other outfall installments virtually useless.

In this case, the joint is a typical rubber-gasket type. But it includes added features that provide more positive closure and protect the pipe face at the joint.

On each side of each end of a pipe section is mounted an anchor block. Pivoted bolts are mounted on the anchor blocks at the bell end. On

the spigot end, the anchor block forms a receiving plate that the nut seats against. (These bolts are tightened by divers using steam-powered ratchets.) These bolted anchor blocks assure positive closure, this feature has not been used previously on a West Coast outfall installation.

Another joint detail involves redwood strips that are mounted around the face of the spigot end of the pipe to protect it from damage during seating.

The only criticism of the joint, noted in talking to the engineers and contractors involved, is that the lip of the bell end is short. A longer lip would speed up the construction rate, since greater care is necessary to insure a watertight joint with the short lip design—and any extra steps under water are time consuming.

In actual use, nuts on the pivoted bolt are fully seated. Then after two more pipe sections have been laid, these nuts are loosened two turns. This leaves the pipe positively seated, but allows some shifting with moving ground, tide, etc.

• Pipe laid in underwater trench—The subaqueous section of the outfall is laid in an underwater trench for 4,500 ft of its 5,000-ft length. The bay bottom at this point is mud, varying in thickness from 10 to 20 ft, underlain by a firm sand layer. For 4,000 ft of the alignment this mud is only 10 to 15 ft below mean low water level.

A barge-mounted crane excavates the mud and, if necessary, the underlying firm sand to proper elevation. Where mud extends below the finish elevation of the bottom of the pipe, it is completely excavated and replaced with sand. Excavated mud is loaded into a barge and towed to another part of the bay for dumping. After the pipe is placed, the trench is backfilled with sand.

Almost all of the pipe is laid at nearly level grade. Toward the end in 800 ft section is sloped downward to obtain 20 ft of additional depth.

Pipe in 24-ft sections is manufactured by the United Concrete Pipe Corp. at its Stockton, Calif., plant. They are shipped to Oakland by rail and transferred at a wartime shipyard to storage racks and then to barges. Shipyard cranes are available for this transfer operation.

Pipe laying is preceded by thorough inspection of the bottom by a diver. If some additional material must be removed, a barge-mounted shear leg with a bucket-equipped crane boom does the job and sidecasts spoil.

Another shear leg with a twelve-part line is used to pick the 59-ton pipe sections from the barge and then lower them into place. The pipe is slightly tipped toward the shore for better entry of the spigot end into the already placed bell end. Effective manipulation of the barge results in a fairly good seating of the pipe. However, the lines are not released until accurate line and grade are accurately checked by instrumentmen on the shore.

During all this procedure the barge on which the pipe-laying shear leg is mounted is securely anchored in place. Steam winches on the anchor lines maneuver it.

For final seating operations, three divers are required. Two contractor divers tighten the pivot-mounted bolt (one on each side of the pipe) with steam-powered ratchets. While they are doing this, an inspector diver inside the pipe uses feeler gages to determine adequacy of seating.

By these methods, average placement is better than two sections a day.

• Diffuser section—Another important design feature is the diffuser section located at the end of the outfall—one of the most extensive such installations ever made.

This section is 288 ft long and it involves thirty-six 16-in.-dia openings on 8-ft centers on alternate sides of the pipe. The pipe size is reduced by steps from 96 in. to 78 in. to 60 in. to 42 in. All the diffuser section is laid in crushed rock that is filled up to the spring line of the pipe.

This outlet section is located 40 ft below mean low water in a channel underneath the east (or cantilever) portion of the San Francisco-Oakland Bay Bridge. Flow tests indicate maximum dispersion at this point.

• Land section—The land section of the outfall is an entirely different problem. Because of the proximity to the bay, seepage and heaving ground are encountered requiring the trench to be sheeted prior to excavation. Wood piling consisting of two piles to a bent spaced on 4-ft 6-ft centers is driven in the bottom of the trench.

The trench is backfilled with 6-in. of crushed rock topped by a minimum of 24 in. of sand. Next comes an 18-in. thick blanket of reinforced concrete. Cutoff level of the wood piling is 12 in. below the surface of the concrete.

Next steps to place the pipe sections. These are laid on 12x12-in. wood blocks on the reinforced concrete cradle. Then comes an additional 12-in. thick sand cushion on the concrete and under the pipe. To prevent air pockets, all this sand is placed from one side after the pipe is laid.

Joints in the land section are not quite as important as on the subaqueous section, but considerable attention was devoted to them also. The cold joint involves straight metallic-type seating, using Carnegie shape M-5151 for the spigot end. A driven lead-fiber gasket on the inside seals the joint. Space between the pipe sections is grouted on the outside and painted on the inside to further seal the joint.

• Unique construction methods—Of interest on the construction of the land section are methods devised by the contractor to speed the work. Most interesting of these is a frame that holds about 20 lin ft of sheeting for driving by a crane-mounted pile driver.

The sheeting frame is supported on rubber tires that ride in steel channels. The channels are mounted on a timber frame and are accurately set to line. By using this rig the contractor drove as much as 245 lin ft of sheeting on both sides of the trench in one day.

Sheeting is fed into this frame several sheets at a time by using a jig that clamps on to the upper end of such sheets. The piledriver crane lifts this jig and slips the sheets into the frame.

On the land section also, the contractor made good use of portable conveyor belts to place sand, crushed rock and concrete.

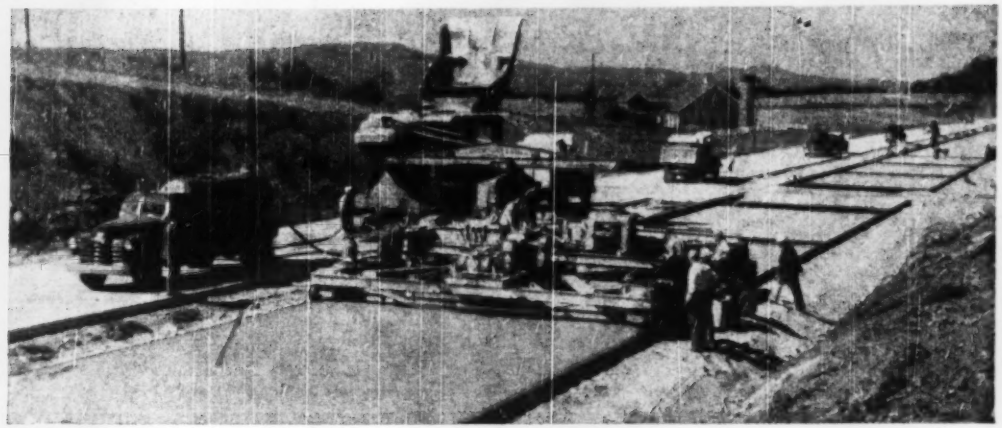
The 32-ton, 16-ft pipe sections were set by a crane that is much heavier than would normally be used. However, the contractor believed that he gained advantage by having more positive control of the work. This is borne out by production records—as many as 33 sections were placed in a single day.

The work is a project of Special District No. 1 of the East Bay Municipal Utility District under general direction of R. C. Kennedy, manager of sewage disposal engineering and construction. W. R. McLean supervises construction for the district and D. A. Root supervises design. Otto C. Bold is resident engineer on the outfall sewer.

Joint venturers on the land section under a $1,057,916 contract are Ben C. Gerwick Co., Inc. and Geo. Pollock Co., general contractors of San Francisco and Sacramento, respectively. Al Canton is their job superintendent.

Contractor on the subaqueous section is Healy-Tibbitts Construction Co., San Francisco, under a $1,267,472 contract with work under general supervision of R. R. Helen.

Subcontractor for supplying pipe on both jobs is United Concrete Pipe Corp., Baldwin Park, Calif.



LONG-BOOM PAVER places 1,200 ft of 24-ft slab in 10 hours. Road will be open at end of 1950. (ENR photo)

Penn Turnpike Stretches East

Similar to original road built ten years ago, Philadelphia extension will cost 87 percent more per mile

IN THE YEARS 1938-40, the Pennsylvania Turnpike Commission built its original road, 160 miles long, for $46,000 a mile.

Now, in 1948-1950, that same organization is building a 100-mile turnpike extension eastward, for $862,000 a mile.

Physically, the two jobs are alike. Design features and construction procedures are practically the same; a lower riding grade on the extension makes for earthwork volumes similar to those on the older route, which runs through rougher country.

Because the two jobs are so comparable, a quick calculation will show that to build a given stretch of turnpike today it takes 87 percent more money than it did ten years ago. Though a phenomenal increase, this figure sticks up well against the ENR construction cost index increase of 100 percent during the same ten year period.

Affording further comparison, major unit price quantities were let on the same basis for both jobs. These relative prices are tabulated.

The present job runs through rolling hilly country, from the original job's eastern end, near Carlisle, to King of Prussia, a Philadelphia suburb. In March, a connection to Philadelphia was placed under contract by another agency. In the 100-mile length there are eight interchanges, 121 road and railroad grade separation structures, and 72 major drainage structures, including a 4,526-ft Susquehanna River bridge (ENR Feb. 23, p. 41).

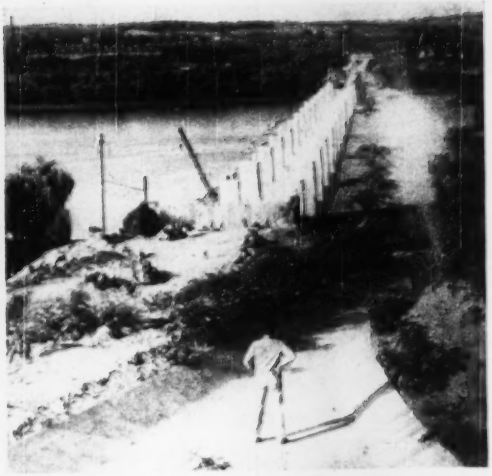
From an engineering standpoint, perhaps the most advanced techniques were used in preliminary investigations (after all, the original construction design was in many ways well ahead of its time). Aerial mapping helped the location (ENR July 8, 1948, p. 134), and a geophysical instrument obtained useful subsurface information. The instrument measured the electrical resistivity of the ground, recording resistivity changes that indicated the location of groundwater and rock.

These two procedures speeded the job and reduced overall costs. The map took five months to produce, about one-fifth the time needed for a ground-surveyed map, at cost about

TABLE I

Unit Prices from low bids on Pennsylvania Turnpike contracts — Ten Years ago and Today

Item	Original Turnpike 1938-40 Total Quantity	Low	High	Average	Philadelphia Extension 1948-50 Total Quantity	Low	High	Average
Class 1 Excavation	21,231,000 cy	$0.25	$1.50	$0.42	15,123,000 cy	$0.42	$1.04	$0.73
Class 2 Excavation	309,000 cy	1.20	4.00	1.69	545,000 cy	2.50	5.60	3.56
Subgrade	4,500,000 sy	.07	.20	.095	2,301,000 sy	.12	.30	.124
9-in. R. C. pavement	4,037,000 sy	2.35	4.00	2.74	2,003,000 sy	4.35	5.05	4.68
Reinf. Bars	29,692,000 lb	.04	.095	.043	18,823,000 lb	.09	.115	.102
Class A Concrete	90,000 cy	17.00	30.00	22.38	57,000 cy	32.00	63.00	48.20
Class B Concrete	159,000 cy	12.90	24.00	17.70	138,000 cy	25.00	42.00	37.30



SLOPE-SAVERS—For this heavy cut, engineers designed Berms (left) to resist possible slides and to provide access for maintenance machines. Paved intercepting ditches (right) from a berm and from top of cut join for carrying off surface water that otherwise would erode slope. Susquehanna River bridge work in background. (ENR photos)

one fifth, too. The subsurface investigations reduced the uncertainties in excavation costs and probably resulted in cheaper contract prices.

• **Design features.** As has been mentioned, design features are similar to those of the present turnpike. A typical 78-ft wide graded cross section carries 6-in of rolled pervious subgrade. Over the subgrade, two 24-ft concrete slabs are divided by a 10-ft grassed strip and flanked by 10-ft stabilized shoulders. The slabs have 9-in uniform thickness, with a straight transverse slope outward of ¼ in per ft. Pavement sections 40 ft 6 in long are reinforced either with 3 gage 6 x 6 mesh in end thirds and 3 gage 6 x 12 mesh in middle third; or with equivalent bar mats, either reinforcement placed 3-in from the top. One-inch dowel bars, preassembled, transfer loads at expansion and contraction joints. A longitudinal construction joint also is doweled.

Shoulders slope 1 in per ft and the medial strip slopes to center drain inlets spaced 400 ft maximum longitudinally. In cuts a center inlet feeds a transverse pipe to an open-jointed primary pipe in gravel-packed trench at the shoulder's edge. In some places, a secondary edge drain runs on the other side of the road, feeding through transverse pipes to the primary. In fills, paved down-slope channels carry the runoff from transverse pipes. Fill and cut side slopes are 2 on 3.

Alignment criteria include maximum curvature of 5 degrees, maximum grade of 2.5% (computed with 3% on original routes). Minimum distance between spirals is 300 ft, and the design speed for curves is 60 mph. Minimum sight distance is 600 ft (for rear-end collision avoidance).

The sight distance requirement is taken into account for vertical curves as well as horizontal curves, the latter resulting in some curve daylighting (flattening side cuts instead of curves). Along the tops of high cuts, paved intercepting ditches are built to keep local runoff from washing down the slopes. One particularly heavy cut has berms to intercept possible minor slides, and to permit maintenance machinery access to those slides.

• **Construction procedures.** Anyone familiar with the earlier turnpike job (fully described in ENR Sept. 28, 1939, p 396; July 4, 1940, p 25) would have little difficulty recognizing most of the procedures today.

However, in grading he would see several postwar makes of self-powered carrying scrapers for faster handling, and an ingenious hydraulically operated boom-end bucket that replaces a lot of fancy hand-shoveling.

Next in paving he would see a trim-grader that spearheads the concreting operation, riding on the forms while it shapes the subgrade.

Otherwise, he would see the same tractor-and-scrapers, with their pushers, he would see bulldozers, rooters, shovels, wagon drills, blasting balls, back hoes and pneumatic tampers. On concreting work, mechanical finishing machines, concrete spreaders and dual-drum 34E pavers. Some of these machines had their first full-scale tests on the prewar job.

The major equipment lists of a few contractors illustrate the grading machinery story. (In general, contracts were let for grading and paving 4 to 5-mile sections of the job.)

• **Patterson Const. Co.,** Monongahela, Pa.: 4.7 mi—four shovels, 9 tractor scrapers (3 self-powered); 9 bulldozers; 14 heavy-duty trucks and trailers; 1 crane; 5 rollers (1 sheepsfoot); 6 compressors; 3 wagon drills. (This is primarily a scraper job, in easy rolling country.)

• **H. J. Williams Co.,** York, Pa.: 4.3 mi—one shovel; 13 tractor scrapers (5 self-powered); 2 pusher tractors; 7 bulldozers; 3 road graders; 1 rooter; 3 boom-end bucket rigs; 4 rollers; 13 trucks; 5 compressors; 2 wagon drills; 1 crane. (This job is similar to and adjacent to the Patterson job.)

• **J. Robert Bazley, Inc.,** Pottsville, Pa.: 4.9 mi—five shovels; 2 back hoes; 5 bulldozers; 13 compressors; 14 wagon drills; 35 large trucks; 6 rollers. (This is a shovel-and-truck job, with plenty of rock work.)

• **C. J. Langenfelder & Sons, Inc.,** Baltimore, Md.: 4.7 mi—five shovels; 2 tractor scrapers; 1 rooter; 8 bulldozers; 3 graders; 13 heavy trucks and trailers; 11 compressors; 14 wagon drills; 5 rollers. (Although this job is in gently rolling country, rock occurs close to the surface in much of the length.)

• **Central Pennsylvania Quarry Stripping & Construction Co.,** Hazleton,

Pa.: 3-4 mi—six shovels, 1 back-hoe, 17 large trucks, 4 tractor scrapers, 7 bulldozers, 2 graders, 4 rollers, 10 compressors, 8 wagon drills. (This contract includes the heaviest single cut on the job.)

For excavation, volumes were figured in 1000-ft sections; cuts and fills not necessarily balanced. Contractors could haul, waste and borrow as they saw fit, in general making their own arrangements for borrow and spoil areas.

• **Job quantities**—Total grading quantities for the eastward extension include: Class I excavation, 15,100,000 cu yd; Class II excavation, 550,000 cu yd; borrow, 550,000 cu yd. Rock excavation amounts to about 30 percent of the total.

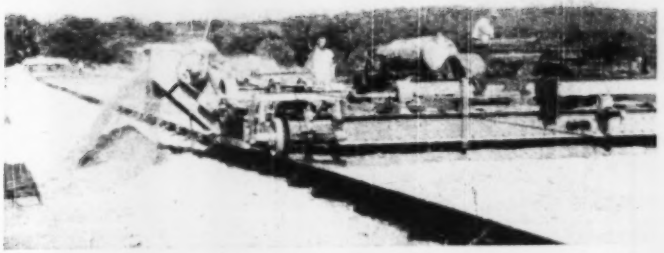
Reinforced concrete pavement (9 in.) totals 3,000,000 sq yd. In general, contractors chose to lay 12-ft wide slabs, although a few took advantage of long booms currently available for dual-drum 34E pavers, by laying 24-ft strips with approved dummy center joints.

The 24-ft arrangement is good for 1200 ft of road in ten hours. Contractors laying 12-ft slabs have made 3000 ft in twelve hours (one dual-drum 34E) and 2400 ft in seven hours (34E laying 6 in.; 27E laying 3 in. over reinforcement).

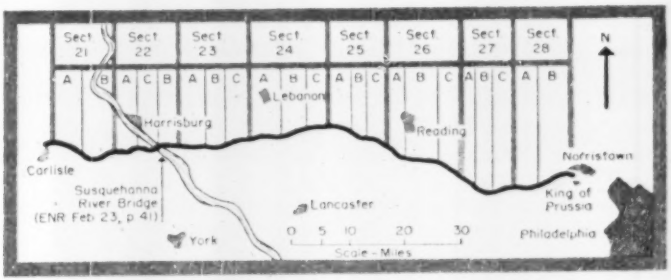
These performances are somewhat superior to those cited for the earlier job (ENR July 4, 1940, p 29). There, 2,626 ft of 24-ft slab was put down in 21 hours; one contractor averaged 225 ft of 12-ft per operating hour.

• **Job progress**—In all, there are 28 contracts for work on the eastward extension, including contracts for grading and paving in 22 sections. The first contract was let in November, 1948, and the last contract for grading and paving was let in September, 1949. Physical completion was 55% April 1, 1950 with completion scheduled at the end of 1950.

Chief engineer of the Pennsylvania Turnpike Commission is Roger B. Stone; John D. Paul, assistant chief engineer; G. H. Rihn, materials engineer; R. J. Harper, general construction engineer. District construction engineers are: G. E. Chapman, B. G. Erickson, and A. E. Cornell. Engineering for the work was performed by the following firms: Gannett, Fleming, Corddry & Carpenter, Inc., Harrisburg; Modjeski & Masters, Harrisburg; Capital Engineering Corp., Dillsburg, Pa.; Parsons, Brinckerhoff, Hall & Macdonald, New York; Michael Baker, Inc., Rochester, Pa.; J. E. Greiner Co., Baltimore, have been consultants to the commission continuously since 1937.



MECHANICAL FINE-GRADER, a postwar road machine in wide use on the Philadelphia extension, rides on pavement forms ahead of concreting, shaves last fractional inch from subgrade. Another new aid to fine grading (shoulders, ditches, side slopes) was an all-hydraulic excavator with a small trimmer-bucket at the end of a telescopic boom. (Pa. Turnpike Commission photo)



TURNPIKE CONTRACT SECTIONS on eastward extension, from present terminus at Carlisle, to King of Prussia, Pa. Public highway connection to Philadelphia now is under construction. Sections and their subdivisions are referenced to contract lengths, costs and contractors listed in table below. Contract lengths range from 1.67 mi to 8.53 mi.

TABLE II

Major Road Contracts Pennsylvania Turnpike Philadelphia Extension

Section (see map)	Length (mi)	Est. Price	Contractor
21-A-1	1.67	$1,319,893	Frank Machuda Co., Pittsburgh
21-A-2	4.853	1,934,237	J. Kelly Bazley Inc., Pottsville
21-B-1	4.355	2,500,058	Johnson, Drake & Piper, New York
21-B-2 / 22-A-1	5.386	3,282,516	Central Penna. Quarry, Stripping & Const. Co., Hazleton
22-C	3.68	2,351,275	Dino
22-B	3.24	1,842,194	Paterson Const. Co., Monongahela
23-A	4.66	2,509,828	C. J. Langenfelder & Son, Inc., Baltimore
23-B	4.31	1,766,215	H. K. Williams Co., Inc., York
23-C	4.00	1,690,875	Paterson Const. Co., Monongahela
24-A	5.33	3,381,286	Harrison Const. Co., Pittsburgh
24-B	4.36	1,763,540	C. W. Good Inc., Lancaster
24-C	3.90	1,803,317	John H. Swanger, Inc., Lancaster
25-A	4.89	2,048,768	H. K. Williams Co., Inc., York
25-B	2.72	1,895,394	Ralph Myer Const. Corp., Salem, Ind.
25-C / 26-A	8.53	4,002,735	C. W. Good, Inc., Lancaster
26-B	6.43	2,797,356	Lovalhanna Const. Co., Carnegie
26-C / 27-A	7.49	3,707,788	C. J. Langenfelder & Son Inc., Baltimore
27-B	3.825	2,229,715	S. J. Groves & Sons, Co., New Milford

Power Station of Radical Design Proposed for El Salvador

Kenneth E. Sorensen
Hazza Engineering Company, Chicago, Ill.

AN UNDERGROUND POWER STATION incorporating a radical departure from normal practice in the placing of the hydraulic turbines is to be built soon on the Lempa River in El Salvador, Central America.

These turbines are to be placed directly under vertical penstock shafts, with their drive shafts horizontal instead of vertical. This arrangement is expected to result in large economies in the design and construction of the plant.

The plant is being built for the Comision Ejecutive Hidroelectrica del Rio Lempa, an autonomous agency of the government of El Salvador. It is located at the Guayabo Rapids, from which it will take its name, about 58 kilometers northeast of the capital city (San Salvador) where there is a drainage area of 5,868 sq mi. The Guayabo project is the first step in a program for development of the power potentialities of the Lempa River to meet the country's need for electric power.

A low dam a short distance above the rapids will form a reservoir that will store 177,000,000 cubic meters (144,000 acre-ft) in the upper 15 meters of depth. This will be sufficient for a regulated flow of 42 cubic meters per second during the driest season and 46 cubic meters per second (1,610 cfs) in an average year. In addition it is planned to develop a natural lake, Laguna Guija, on the headwaters of the Rio Lempa for a somewhat greater volume of additional storage.

• **General plan**—The general layout is shown in Fig. 1. The dam will be a concrete gravity structure about 64 meters high and nearly 500 meters long, with a spillway in the highest portion across the main river channel controlled by seven radial steel gates each 12 m high by 12.4 m wide. A very extreme flood will also overflow through a valley to the northward where an earth fill "fuse plug" is provided. The total flood capacity of the gates and the "fuse plug" section is 18,500 cubic meters per second (650,000 cfs.)

To the right, or south, of the spillway will be a concrete gravity wing dam extending to high ground, and on the left, or north, of the spillway will be the intake structure forming a part of the dam. This structure will contain trash screens and steel intake gates which shut off or admit water, as required, to vertical shaft penstocks with steel liners leading downward to the hydraulic turbines.

The underground power station will occupy a chamber excavated in rock directly below the intakes. Except for the horizontal setting of the power units it will be similar to the underground plants in Europe that aroused so much interest among the American engineers who attended the Confer-

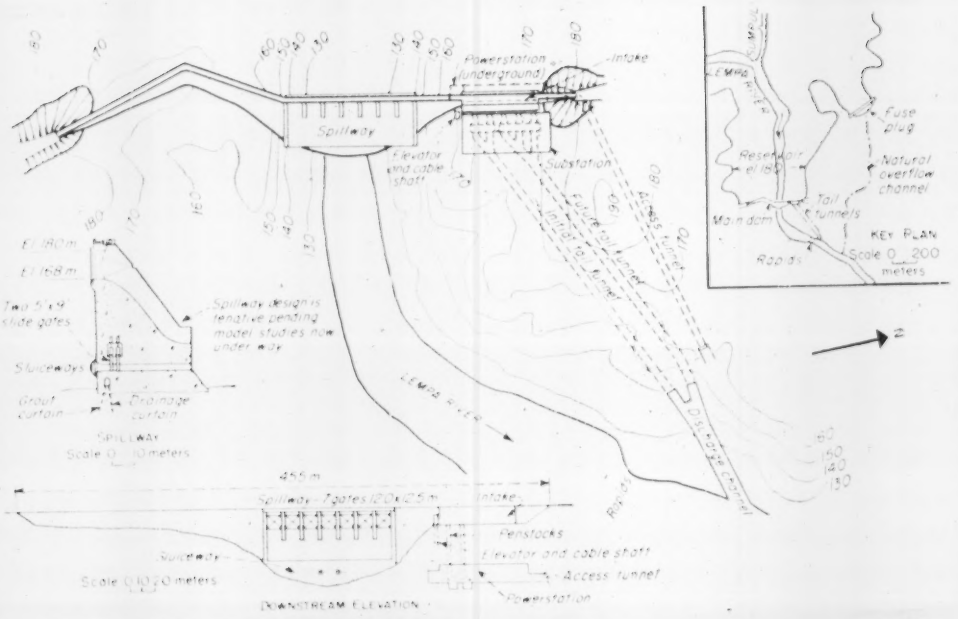


FIG. 1. THE GUAYABO POWER PROJECT in El Salvador is to be located above a rapids on the Lempa River where sound rock favors the use of an underground power station.

ence on High Dam in Stockholm in 1948. But those stations almost universally follow the general vertical-unit layout of conventional surface powerhouses.

• **Advantages of design**—The Guavabo power station will depart from this practice with several obvious advantages, by using horizontal units as shown in Fig. 2. The advantages are:

1. The power station chamber will be only slightly over one-half as high (and of about the same width) as required for vertical units, thus greatly reducing excavation.

2. The elbows in the penstocks ahead of the turbines, required in vertical units, are eliminated and the penstocks enter the scroll cases tangentially without elbow bends.

3. This setting permits the use of a straight conical draft tube of simpler construction than an elbow tube.

4. The absence of penstock elbows and of the elbow draft tubes will conduce toward higher efficiency and smoother operation. The length of a horizontal conical draft tube is not a matter of equal concern as compared with vertical units because it is in the direction of, and in lieu of, an equivalent length of the required tail tunnel.

5. The time of construction will be materially shortened. Instead of some 16 or more pours of concrete from foundation level to generator floor, the generator can be founded nearly on bedrock after only one or two pours of concrete. Turbine embedded parts can be lowered through the penstock shafts. Turbines and generators can thus be installed simultaneously.

6. By using an intermediate section of shaft it can be so arranged that the removable parts of the turbines can be taken out without disturbing the generators.

7. Danger of cavitation and pitting will be almost eliminated.

• **Disadvantages**—The only apparent disadvantage is that turbine movable parts will need to be moved horizontally for assembly or for dismantling without benefit of the crane. For this purpose special handling devices will be required which will permit the turbine parts to be moved out to within reach of the main crane. The turbine approach tunnel can be of gothic section with high enough arch to accommodate an overhead trolley beam with chain blocks; a special car or dolly can be provided to run on rails underneath the shafts; or the entire head cover assembly (with runner) can be designed with its own wheels attached to integral brackets and travelling horizontally on rails embedded in side walls of the access tunnel.

Alternately, the turbine approach tunnel could be eliminated and the turbine head cover set substantially flush with the generating room wall but this would require the penstocks to be embedded in vertical grooves in the rock wall and thus interrupt the continuity of the support of the roof arch and otherwise complicate the structure.

This type of power station, because of its low elevation relative to tailwater, would not be practicable for an outside or surface powerhouse with a great tailwater rise (in this case a possible 70 ft) as it would be too costly to design the exposed building against outside pressure. But this objection does not apply to the underground chamber for which the natural rock forms the support. Only the tailgates would be directly exposed to the high tailwater and these are at the same elevation as with a conventional vertical unit. The turbine head cover is the only power station surface directly exposed to water pressure, which would also be the case with a vertical unit, the pressure against it when operating being a compromise between headwater and tailwater, and when idle, equal to tailwater.

• **Equipment**—The power station will be equipped initially with two horizontal-shaft hydraulic turbines fed through the vertical penstock described above, driving two horizontal generators, and with extra floor space for erection and dismantling, switchgear and operating room. The turbines will be rated each at 21,000 metric horsepower at a head of 164 ft or 50 meters. The generators will be rated 16,667 kva at 90% power factor, 200 rpm, 60 cycle, three phase. Five such units are planned ultimately.

The Guavabo station will generate, with the initial two units, a normal capacity of 30,000 kw, decreasing to about 26,000 kw when drawn down to lowest elevation for useful storage.

The two horizontal conical draft tubes discharge into a single tail tunnel about 250 meters long followed by open cut for about 70 meters. The net head will vary from about 56 meters (184 ft) at full reservoir and full load flow down to about 41 meters at low reservoir elevation. Access to the power station will be through an elevator and cable shaft at the intake and an inclined tunnel.

The commission that is building the plant consists of five members: Victor Manuel Valdes, president; Victor De Sola, Roberto Dueñas, Leon Cuellar and Jacinto Castellanos. Sr. Valdes, Cuellar and Castellanos are engineers. Consulting engineers for the design of the plant and supervision of the construction of the project and initial operation of the plant are the Harza Engineering Company of Chicago.

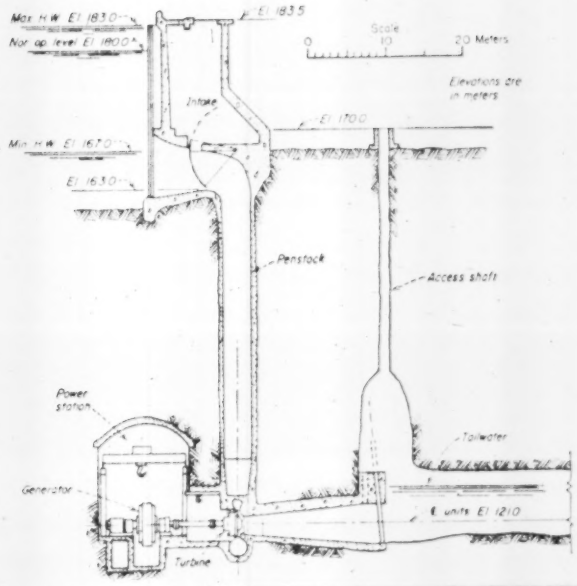


FIG. 2. NOTABLE IN THE LAYOUT of the underground Guavabo power plant is the horizontal placing of the turbine and generator.

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The gauging will always check accurately on an Adnun job!

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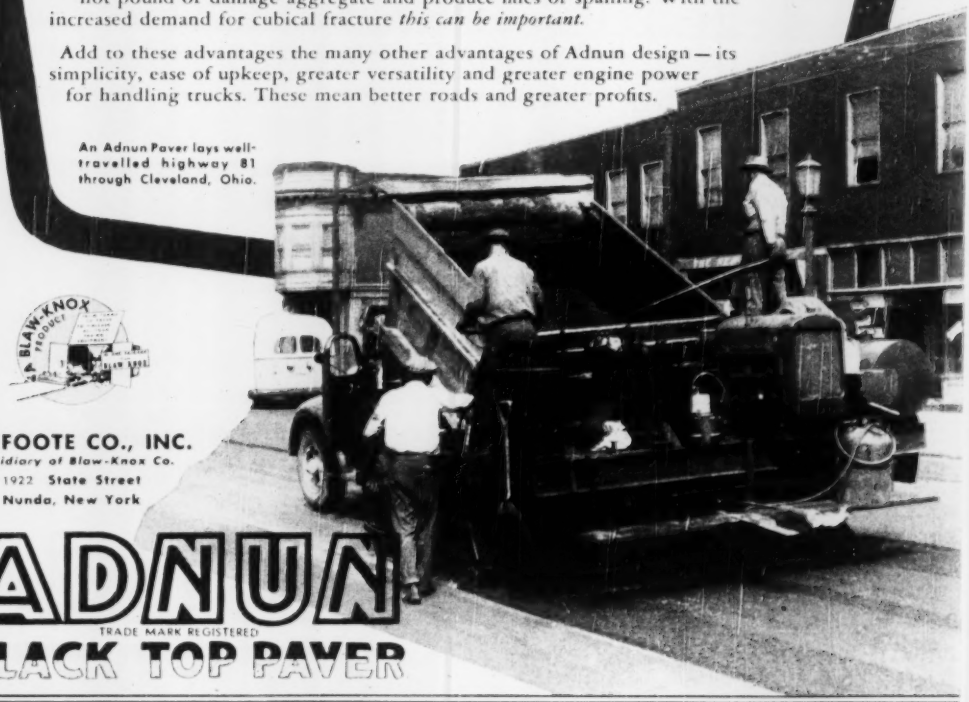
Add to these advantages the many other advantages of Adnun design—its simplicity, ease of upkeep, greater versatility and greater engine power for handling trucks. These mean better roads and greater profits.

An Adnun Paver lays well-travelled highway 81 through Cleveland, Ohio.



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READER COMMENT

Prior Claim

Sir: I have just read, in the July 7, 1949 issue of the Engineering News-Record, the article of Gerald Bowen entitled "Mirrored Model Gives Slab Moments."

As a matter of record, I explained the principle of this method in *January, 1940*, in the "Annales des Ponts–Chaussees."

P. Dantu
Provins, (Seine et Marne) France

Correction: Bridge Cost $6.14 per sq ft, not $11.25

In the article "Bridge Built for $11.25 Per Square Foot" (ENR May 18, 1950, p 43), the editors wrongly computed the square foot cost from the linear foot figure that was supplied with the information on which the article was based. This linear foot figure was $135, and for the 22-ft wide deck that would be $6.14 per sq ft, not $11.25. Our apologies to B. Loyal Smith, the engineer of Walla Walla County, Wash., who gave his constituents a truly low-cost bridge.

Avoiding Blast Claims

Sir: F. J. Crandall's article "Will My Blasting Damage Property?" (ENR May 4, p 36) recommends that the adjacent property owner should be warned in advance that no damage will result from proposed blasting operations. I have found that a better procedure is to show him in advance how much damage his building has already sustained from other causes.

Some years ago, a nearby municipality built a new intercepting sewer through the city and I was engaged to appraise the large number of claims for damage caused by blasting that were made against the city.

Most of these claims were for cracks in foundations and in plastered walls and ceilings. It was evident in most buildings that the defects complained of were old cracks that had appeared a long time previous to the blasting operations.

I then suggested to the city authorities that on future work of this sort, it would be wise to inspect all adjacent buildings BEFORE blasting was started and to prepare a schedule of such defects.

In many cases where this was done, I was assured by the building owner that there were no cracks in his building. He was surprised when I pointed out small settlement and shrinkage cracks in cellars; plaster cracks in ceilings and around doors—cracks that he had never noticed before.

When blasting is done, the building owner hears and feels the shock. He then inspects his building and discovers, for the first time, a number of cracks. He naturally ascribes these to the blasting work and, in good faith, files a claim accordingly. In the cases where a preliminary survey had been made, no claims resulted.

Leslie H. Allen
28 Bowdoin St.
Newton Highlands 61, Mass.

Reuse of Soil Samplings

Sir: In your issue of January 26, p. 11, is an editorial entitled "Controlling Soil Compaction," which points out the disadvantages of reusing soil samples.

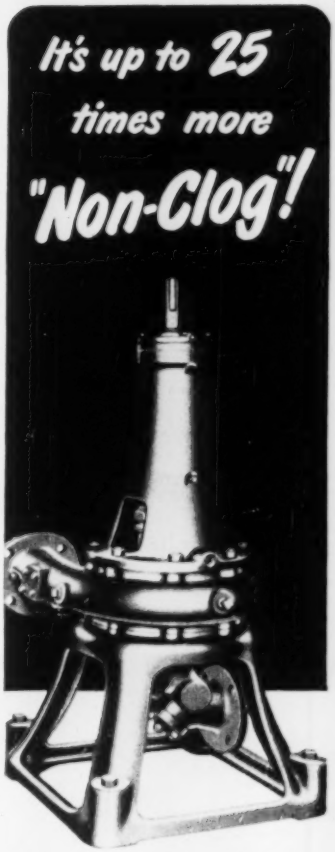
The common practice of reusing a single sample of soil for the determination of the moisture-density relationship has been opposed by the writer for a number of years. The practice of the State Rivers and Water Supply Commission of Australia, as developed by the writer, was set out in a publication in 1944 which was revised in 1945 and issued as a "Handbook of Methods of Testing Soils as Practiced in the Soil Mechanics Laboratory." The following statement appeared in that handbook: "Soil which has been compacted should not be broken up and used again. With one sandy soil, variations in the dry density of up to 3 lb per cu ft were found between compactions on original and recompacted samples, which were due to a breaking down of the soil particles during compaction." It is of interest to note how closely this agrees with the findings that were discussed in your editorial.

Our handbook was printed by the Government Printer and a few copies were distributed by the Tait Book Co. of Melbourne but, unfortunately, distribution was not wide enough to have had our findings come to the attention of many engineers in the United States.

J. MacNeil Turnbull
Engineering Research Branch
State Rivers and Water Supply Comm.
Melbourne, Australia

Correction

In the drawing of the South Hadley Bridge underpinning job (ENR April 27, p. 41), caisson dowel bars were stated to be ¾ in. square. The bars are 1¼ in. square.



Here . . . now . . . is an amazing development in sewage and trash pumps . . . the Fairbanks-Morse *Bladeless* Impeller Pump.

In actual tests and field operation, it is from 10 to 25 times more "non-clog" than any conventional sewage and trash pump.

Another important advantage is the fact that for a specific solids size, the pump delivers approximately one-half the capacity of conventional sewage pumps. Thus you do not flood filter beds in plants where sewage flows are relatively low. Reduced capacity permits the use of smaller driving motors, thus assuring economical costs . . . lower power costs.

For complete details, check your Fairbanks-Morse Pump Distributor, local branch office, or write Fairbanks, Morse & Co., Chicago 5, Ill.

Eliminating blades, this impeller is a helical channel . . . a "whirling tube" with no blades to catch and hold fibrous trash and cause the pump to clog.

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Large bearing and fewer sheaves reduce friction and wear.

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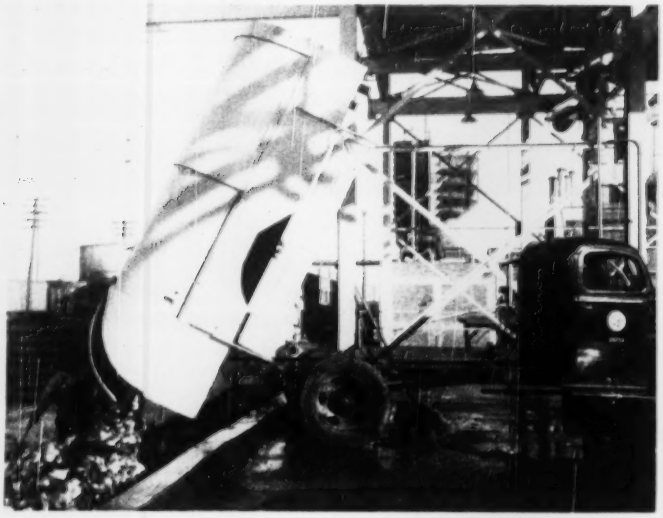

COVERED GARBAGE TRUCK—New covered garbage trucks used by Los Angeles have rear door which opens automatically to dump garbage at disposal area when bed is lifted by electric hoists. Old truck beds were retained, and cover was made from #20 gage sheet steel. Double door on either side of cover slides back to allow collection. Sprinklers installed under cover wash interior after dumping. Trucks hold 4.6 cu yd of refuse—about the same load carried by uncovered trucks. Railway cars carry garbage from disposal area to hog farms (ENR Apr. 13, 1950, p 38). (L. Joseph photo.)

Plane Table Pointer

A field procedure known to experienced plane table men but mentioned only briefly in surveying texts eliminates an awkward problem in the use of the alidade. When sighting an object to be located, one edge of the alidade should pass through the plotted point over which the table is set. Considerable juggling is required to keep the blade in this position while turning it for line. A pin stuck in the paper will serve as a pivot but will make a veritable crater in the paper.

A simple solution consists of fixing the alidade reasonably close to the plotted station and pivoting as necessary for sighting. Then, by means of two triangles, a line parallel to the edge of the blade is passed through the station. (A narrow folding parallel ruler may be used instead—in fact the alidade blade itself can be constructed as an adjustable parallel ruler.)

The error introduced by this method is insignificant for maps having a scale as large as one inch equals 100 ft. And the edges of most alidade blades are offset from the center line of the telescope; hence the procedure suggested merely enlarges an error built into the equipment.

For stadia distances read to the nearest foot, an angular accuracy of five minutes is sufficient. Placing the alidade six inches off the point for a 500-ft sight roughly maintains comparable linear and angular accuracy since one minute equals about 0.03 ft at 100 ft. For shorter sights the alidade blade should be closer to the point representing the station occupied.—Russell C. Brinker, University of Southern California, Los Angeles.

TWO TRIANGLES transfer line of sight to plane table sheet, save time-consuming alidade jockeying without introducing undue error.

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½ INCH THROUGH 30 INCHES

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To increase safety, ease of installation and welding accessibility . . . Ladish Welding Tees have Full Branch Outlets with identical center-to-end dimension of branch and run as is required for each size *through 30 inches*. Scientific metal distribution . . . pioneered by Ladish . . . adds extra protection by equalizing stress over the entire fitting and assuring maximum strength in every cross section.

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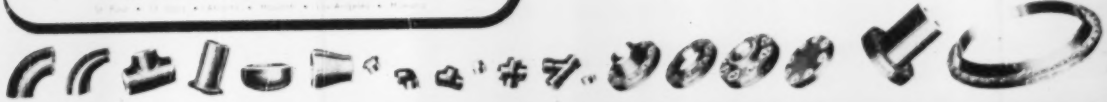

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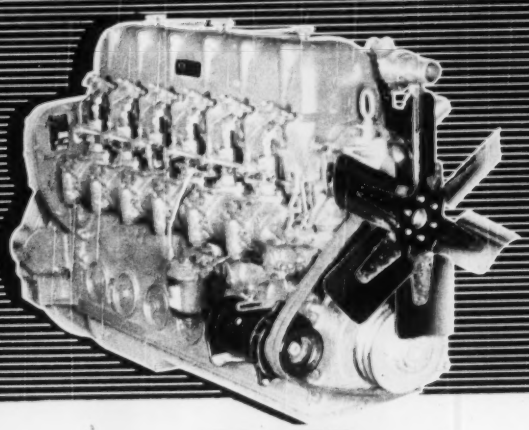

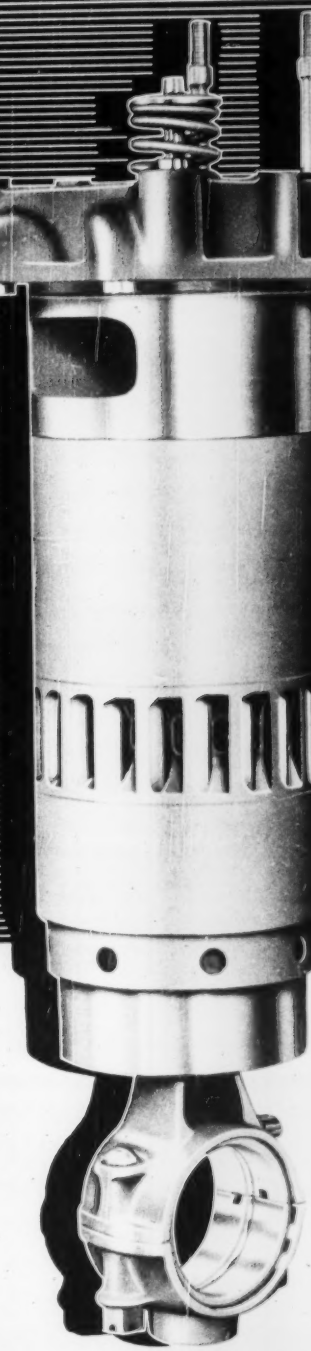

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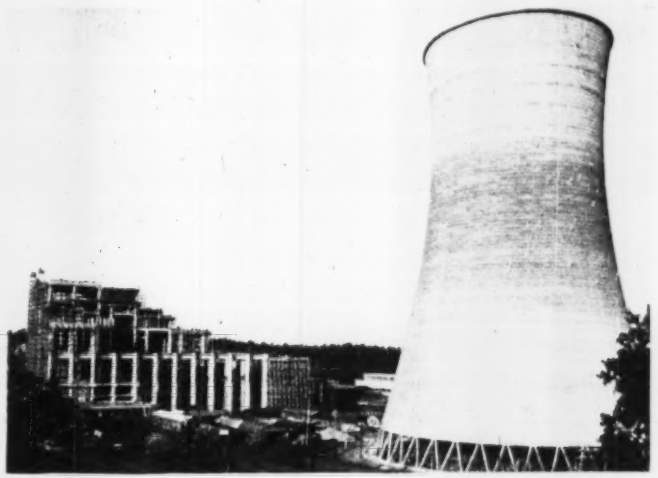


MORE POWER FOR FRANCE—The funnel-like structure in the foreground at Carling, in northeastern France, is one of the four towers through which water from steam condensers will pass to be cooled for re-use. Each tower is to be 280 ft high and 197 ft in diameter at the base. The powerhouse will be 427 ft long, 135 ft wide, and 162 ft high, constructed entirely of reinforced concrete.

Carling thermal station to be largest in Europe

The French have begun building the largest thermal power station in Europe at Carling in Lorraine. When completed, it will burn more than 7,000 tons of coal per day, and eventually it will produce upwards of two billion kwh per year.

The Carling power station eventually consists of four 100,000-kw capacity generating units. Work is well under way on two of them. The first of them, it is expected, will go into action by the end of this year; the second one early in 1951. When finished, this station will generate more power than France's famous Genissiat Dam, and as much as the giant Donzere-Mondragon station.

Carling was chosen as the site of this development because of its proximity to the coal fields of Lorraine. It is in the exact center of the pit heads of Merlebach-Cuvelette, Sainte Fontaine, La Nouve, Faulquemont and Folschviller.

This new power station is urgently needed in Lorraine, one of the recovered "lost provinces". Yearly consumption of electric power in the Lorraine Basin increased from 286,000,000 kwh in 1938 to more than 500,000,000 kwh last year. By 1952 consumption is expected to top 800,000,000 kwh, whereas present capacity is only about 525,000,000 kwh.

Simultaneously, coal output of the Lorraine field is skyrocketing. About 14 percent of it is fit only for generating power or similar uses.

Foreign Briefs

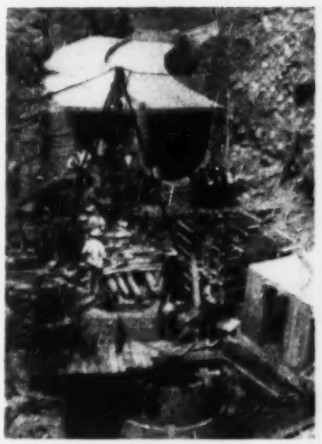
Venezuela airports—A multi-million dollar airport improvement and expansion program is well under way in Venezuela. It involves construction of a new, longer runway at Maiquetia, the international airport serving Caracas, and the building of the new Palo Negro airport at Maracay, which, it is said, may become one of the largest aviation centers in the hemisphere.

New paint remover—A paint removing device which Dutch engineers call brand new has been invented by Jan Prent, a public works official at Amsterdam. The open flame of the conventional instrument for burning down paint has been replaced in the Prent burner by a metal surface heated by the burning of propane gas in a closed combustion chamber. The paint no longer comes in contact with the flame. At demonstrations in Amsterdam, strips of nitrocellulose film were fixed over seams on the back of a wooden fence. An old type paint burner directed at the front surfaces of the fence had the strips afire in a fraction of a second. The Prent burner left the film unaffected after 15 seconds of use. The burner may be used on lacquers as well as on paint.

Aluminum prefabs—The Bristol Aeroplane Co. (Housing) Ltd. plans to establish assembly plants in Australia for its designs of aluminum prefabricated houses and schools. This was announced at Weston-super-Mare, England, recently when the first major consignment of 26 Bristol aluminum schools, part of an order for 100, left the factory for shipment to the government of Victoria. Bristol is shipping building components completely assembled, but the intention is to set up assembly plants in Australia.

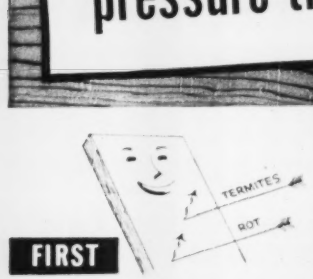
Truck terminal—A group of truck and hauling companies has requested permission of the government to build a 10-story trucking terminal in Mexico City. The building will be on a site of several blocks on one of the main thoroughfares, Avenida Insurgentes. It would provide a central transfer point for the heavy flow of freight which comes in from the north and is shipped out to the south, east or west by different lines. Truck hauling constitutes a major part of the Mexican transport system and is growing with the continued expansion of the highway network.

(Continued on p. 52)



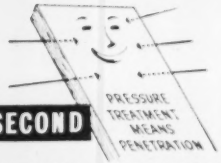
INFILTRATION GALLERY—Mountainous country traversed by the Lerma aqueduct to serve Mexico City with a new water supply from Lake Lerma offered opportunity to tap small streams enroute. Shown here is an infiltration gallery being constructed in an arroyo for this purpose. Some 200 engineers from all countries of Latin America, the Philippines and the United States inspected the work during the recent meeting of the Inter-American Association of Sanitary Engineering. The aqueduct, which is expected to be in full operation in 1952, is being built by Mexico City's federal district water department.

All engineers should know these facts about pressure-treated lumber



FIRST

PROTECTION—Treating of lumber preserves it—just as alloys preserve metals. The purpose is to protect lumber against costly rot and termite damage.

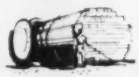


SECOND

PRESSURE TREATMENT vs. Surface Application—Authorities say that pressure treatment provides the only *sure, lasting* protection to lumber.

THIRD

OTHER QUALITIES TO LOOK FOR—For greatest usefulness, preservatives also should be *clean, odorless, paintable, non-leaching* and *non-corrosive.*



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WOLMANIZED Pressure-Treated Lumber combines *all* these requirements—*lasts 3 to 5 times longer* than untreated wood, because it's treated under 150 lbs. pressure per square inch. Protection is deep in the wood fibers. It's clean, odorless, paintable, non-leaching, non-corrosive. Wolmanized Pressure-Treated Lumber has been proved in use for over 25 years. It will prove its value to you, too.

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Brazilian road show

Sponsored by the national highway department of Brazil, a road show is to be held in Rio de Janeiro, Nov. 12-30, 1950.

The management of the show believes that it will be a good opportunity for U. S. manufacturers to show their good-will, the quality of their products, and their interest in the Brazilian road program.

The show will have the benefit of the advice, support and cooperation of the Pan American division of the American Road Builders' Association, and efforts are to be made to obtain import facilities from the Banco do Brasil and the customs authorities so that special treatment may be given to the materials and equipment sent to the exhibit by American manufacturers.

Foreign Briefs

New contracts for Americans—The British Minister for Works, Mines and Power has informed Parliament that preparation of the designs for the Hirakud Dam in the United Provinces of India has been entrusted to the International Engineering Co., Inc., of Denver, Colo., while a trial load analysis on the Kosi Dam has been entrusted to the U.S. Bureau of Reclamation.

Pierhead moved 9,000 miles—A 1,000-ton pierhead, once part of temporary invasion harbors, has arrived recently at Banka Strait, off the east coast of Sumatra, Indonesia, after having been towed by sea about 9,000 miles via the Suez Canal. Measuring 200 ft by 60 ft, it is now in use as a floating oil dock. The trip from England took 67 days. The motive power was the 2250-hp Dutch tug "Noord Holland."

Better roads needed—The need for a global movement for more and better roads was emphasized at the recent annual highway engineering conference at Ohio State University. Robert O. Swain, executive secretary of the International Roads Federation, said "There are hundreds of thousands of square miles of fertile lands throughout Latin America, with valuable timber and vast mineral deposits, that lie untapped because they are inaccessible."

Turkish irrigation—Ahmet Nevzi, Turkish engineer visiting this country, says that Turkey is trying to improve its agricultural production by modern irrigation methods, and is planning purchase of $500,000 worth of American drilling rigs and pumps.

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Mister, you can pull out of almost anything! These babies have DUAL rear drives — and you can have 'em with an optional differential lock-out that assures you of pulling power as long as the two wheels of either axle have traction. And the differential lock-out, controlled from the cab, means no loss of power through slippage in mud, sand or slick, loose going.

Each dual rear wheel is "free hinged" to roll right over bumps and holes. Even though all four rear wheels are on different levels they'll keep right on pulling. Your load rides smoothly with less chance of shifting than on single-axle vehicles. The load, mounted midway on the "walking beams" that connect the two rear axles, takes only half the up-and-down motion of the axles themselves.

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In hauling heavy equipment or materials to the job these same six-wheelers keep you within legal

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Plenty to keep drivers happy too! Synchro-Mesh transmissions, easy-working cushion-disc clutches, famous "Easy-Turn" recirculating ball-bearing steering gear, power brakes, and roomy lifetime cabs — all make these high-powered hustlers a cinch to handle.

Gross vehicle weights of 24,000 to 32,000 lbs., GMC heavy-duty truck construction throughout, powerful valve-in-head engines, wide range of transmissions — think what you can do with them and their four dual rear wheels.

Why not let your GMC truck dealer show you more about these new additions to the GMC six-wheeler line. Find out why GMC six-wheeler trucks are built to stay on your job and roll away your hauling troubles — and how little they cost.

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MUNICIPAL AFFAIRS

HOLLYWOOD FREEWAYS—At the left is Cahuenga Freeway entering Hollywood, Calif., connecting points to the north and points in the San Fernando Valley. It will join the new Hollywood Freeway in the northern area of the movie capital. The view at the right is along that unfinished parkway from Normandie Avenue to the Civil Center. Bridges in the foreground cross Normandie and Melrose avenues and underpass Vermont Avenue. So far the parkway has cost $37,060,000, with another $5,000,000 worth of contracts under way. Almost one-third of the 10½-mile parkway will be in use by the end of the year, and it is expected that the entire parkway will be in operation by late 1952. It is a state project.—Wide World Photos.

New lighting installed for downtown St. Paul

St. Paul, Minn., has now put into service a new street lighting system, a part of an extensive modernization program for 25 blocks of the downtown section. Local merchants have been active sponsors of the improvement program since its start in 1944.

The improvements included some sewer enlargements, new paving, new walks, which in some instances were widened one foot, making a cross section of 38 ft of paving and two 11-ft walks.

By a voluntary agreement, merchants removed all overhanging signs. The city council then passed an ordinance prohibiting signs in that area extending more than 12 in. over the public sidewalk.

The St. Paul City Railway co-operated by removing its trolley cross wire poles and attaching the wires to eyes in the walls of the buildings. New street lights were designed to be attached to the walls of the buildings so that all lamp posts might be removed from the curb line.

The wall mounted luminaires were designed by the General Electric Co. and the Holphane Co. They are attached to the building 26 ft above the grade of the sidewalk, and are spaced 60 to 75 ft along the street.

The lighting system was erected under the supervision of Harry C. Streich, superintendent of lighting, Department of Public Utilities. The street and sidewalk work was carried out by Geo. M. Shepard, chief engineer, and the co-ordination of all these activities was handled by M. W. Thompson, secretary of the retail subdivision, St. Paul Association of Commerce.

The contracts for the lighting amounted to $97,000, covering four streets for five blocks each. Other work done by the city in this connection totals over $1,000,000.

Planning for 26 cities

British Columbia has a regional planning board which is working on a town plan for the whole lower mainland of that province. There are 26 member municipalities, each with one board representative, and municipal engineers act as advisers. The chairman is D. J. McGugan, chief engineer of the Fraser Valley Dyking Board. The secretary is Tom McDonald, regional supervisor of the Community Planning Association and chairman of the Vancouver Zoning Board of Appeal.

Prof. H. F. Overlander of the department of architecture of the University of British Columbia at Vancouver, one of the authors of the town plan for London, Eng., is consultant to the regional planning board. He is a McGill graduate and did post-graduate work at Harvard.

Municipal Briefs

Toledo expressway—A 54-mile, multi-million dollar expressway plan for Toledo, Ohio, approved recently by the Ohio highway department, has been turned over to city officials for their consideration by Howard, Needles, Tammen & Bergendoff, Kansas City, Mo., consulting engineers. The vast highway system, designed to handle all traffic anticipated in the area by 1970, would cost a total of $61,940,000, the firm estimated. The project includes two new bridges over the Maumee River, one of which is a $5,000,000 four-line North Toledo bridge approved by voters last November. The bridge will be designed as the first link in the proposed Detroit-Cleveland by-pass, but also would serve local traffic.

Boston subways—The Metropolitan Transit Authority of Boston, Mass., will go ahead with two of its four construction projects, one for enlarging the Park Street-Scollay Square subway tunnel at a cost of $11,500,000, and the other a new subway between Washington and Dudley streets. A quirk in the law that authorized them will delay the other two projects. The subway between Haymarket Square, Boston, and Sullivan Square in Charlestown, along with demolition of the elevated structure between Dudley Street and Forest Hills,

Continued on p. 58.

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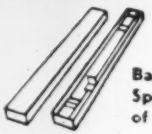

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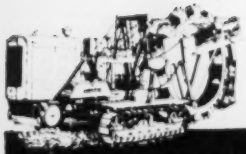

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Municipal Briefs

Erosion danger—Ocean wave erosion at Oxnard, Calif., in the last few months has washed out pilings and undermined the beach supporting that city's outfall sewer. Port Hueneme Engineer, D. A. Godshall says that since December, 1948, the beach next to the plant has receded 149 ft. and that unless something is done about it there is danger of the whole sewage treatment plant crumbling.

Off-street parking—The Massachusetts House of Representatives has given initial approval of legislation permitting the city of Boston to spend an additional $5,000,000 for off-street parking facilities.

Street improvements—Portland, Me., is ready to spend $500,000 on street improvements to tie in with the planned express highway through the city. State and federal agencies must first approve three construction projects outlined by the local public works department.

Double check on awards—A new division in the highway department of Boston, Mass., will give final approval on construction projects before awards are made. Called the "Finals Section," it will be headed by Charles Mutel, an engineer. All construction engineers will be under the supervision of George Bertini, in charge of lines, grades, and estimates. David O'Riordan will head all inspections.

Luxury hotel for Dallas—Conrad Hilton, well-known hotel man, and eight businessmen of Dallas, Tex., have agreed to form a corporation to build a 500-room, $8,000,000 hotel in the downtown section of that city. Hilton described the proposed hotel as of the luxury type with meeting and convention rooms, a large ballroom, a fine restaurant and specialty shops. An executive committee of the chamber of commerce discussed finances with Mr. Hilton. The members of the committee are R. L. Thornton, Fred F. Florence, Ben Wooten, D. A. Hulcy, J. L. Latimer, Stanley Marcus, John W. Carpenter, and George MacGregor.

Building boom in Topeka—The greatest construction program in the history of Topeka, Kan., is under way or planned for this year, to cost upwards of $11,000,000. Increased population has forced the city commission to extend the city's boundaries and has spurred construction of new homes and additional public and business buildings. About half the new construction is for hospitals.

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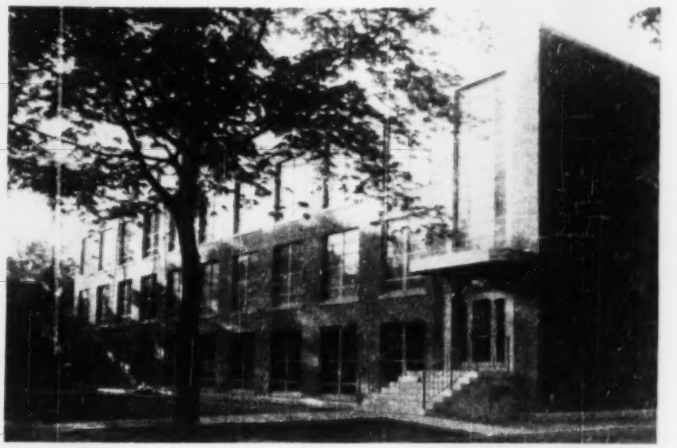

WATER SURVEY BUILDING.—This new building on the campus of the University of Illinois is to be occupied by the Illinois State Water Survey.

Illinois Water Survey occupies new building

The Illinois State Water Survey, which was set by the Illinois General Assembly in 1895 to collect information on the state's water resources, has moved into its new home on the campus of the University of Illinois.

Extensions of the original studies by the survey were authorized by the General Assembly in 1897, 1911, and 1917. Arthur M. Buswell is director.

New C. E. Laboratories at Carnegie Tech.

The civil engineering department of the Carnegie Institute of Technology, Pittsburgh, Pa., is the first of several engineering departments to be moved to new laboratories, workrooms, and offices as part of a major building program. The department occupies about 25,000 sq ft in two wings of Industries Hall. The laboratories in hydraulics, structures, and materials, occupy four floors in one wing and the offices and classrooms occupy two floors of the other wing. The new construction features corrugated glass partitions, acoustic ceilings and functional coloring in the laboratories and classrooms, and plywood paneling in the offices.

The laboratories and workrooms are designed for instruction and research as part of Carnegie Tech's plan of professional education in engineering and science. Full-time programs are offered at college and post-graduate levels, and part-time evening classes for graduates of high schools and colleges who are working with industries and engineers in the Pittsburgh area.

Some of the current projects include studies of bond stress distribution, reinforced concrete beams, a basket-handle culvert, effect of cold-working on fatigue strength of mild steel, some new hydraulic calibrating and regulating devices, and studies of bed scour, fluid turbulence, short conduits, and manifolds.

Webster N. Jones is dean of the college of engineering and science, and E. T. Mavis is head of the department of civil engineering. L. H. Miller, assistant controller of operations, supervised the new construction work.

Educational Notes

Women engineer—Miss Emma Frances Barnett, 27, is the first woman to be registered as a structural engineer in Illinois. The daughter of an engineer and a graduate of the college of engineering, University of Colorado, she is employed in engineering work by the city of Chicago.

Canadian engineers in Britain—A mission which has been touring Canada to promote public interest in use of British facilities for theoretical and practical training of engineers, has invited one member of each engineering faculty in Canada to tour Britain to inspect the facilities. The touring party will comprise 11 engineering faculties members. The tour will last about six weeks.

Joint scholastic program—Oberlin College, Oberlin, Ohio, and Case Institute of Technology, Cleveland, have agreed on a joint plan to enable engineering students to acquire both Bachelor of Arts and engineering degrees by studying for three years at Oberlin, then another two years at Case. The plan will go into effect next fall.

Hydrodynamics—According to engineers at MIT, the use of interconnected electronic computers giving a television-like picture of water action may help make possible more efficient use of water and water power. One problem is the behavior of surge tanks, devices in most hydro systems to help eliminate changes in water pressure as gates and valves are opened and closed. It is hoped that studies will help determine the sizes and designs best suited to particular needs.

Applied mechanics—A professional engineering program in applied mechanics is being given at the Virginia Polytechnic Institute, June 14-22, and a graduate school through the summer. Special features include: Sir Richard V. Southwell's course in "Relaxation Methods" and a "Symposium on Modern Developments in Design," in which the following engineers will participate: Prof. Hardy Cross, Yale University; M. Hetenyi, Northwestern; L. S. Jacobsen, Stanford; R. D. Mindlin, Columbia; and D. B. Steinman, consulting engineer, N. Y.

Disaster relief planning—Two-week training courses in disaster relief planning and operations are conducted during nine months of each year by the U. S. Naval School for Civil Engineer Corps officers at Port Hueneme, Calif. No courses are given in February, September and December. New classes convene the third Monday of each of the other months. During the last year, about 200 officers of the Naval Reserve took the training courses. Reserve officers usually come from engineering firms, contractor organizations, or government engineering sections. The courses give training of value to the student both as a reserve officer and as a civilian concerned with the security of his home community. The Navy counts on comprehensive training in disaster relief as given at the school, supplemented by drills on the scale of the Los Angeles Citizens Emergency Relief Corps, to help greatly in developing the overall [illegible] of the country.

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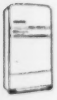

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Prime-mover on D Roadster-type Tournapull has 122 h.p. diesel engine . . . 5 speeds to 25 m.p.h. . . . electric controls . . . 90° turn power steer . . . power-proportioning differential . . . 18.00 x 25 low-pressure tires. Wide rim 65" Tournapull tires and 56" Carryall tires are available. These extra big tires speed loading because they provide increased flotation and reduce rolling resistance. In sand and soft going they will deliver as much as 60% load increase over ground-grip tires. Uses 4-wheel multi-disc air brakes with every auxiliary unit except Logging Arch . . . 3132 sq. in. braking surface.

1 7-YD. CARRYALL SCRAPER

D Tournapull with 7 cu. yd. (9-ton) Carryall self-loads in all good scraper materials . . . yet has ample load capacity for profitable pusher-loading on production dirtmoving. Interchangeable with all other hauled units . . . or can be used with Bulldozer or snow plow mounted on front of Tournapull.

4 V-TYPE SNOW PLOW

has 10½' clearing width . . . 4'8" high at ends of moldboard. Vertical divider plate, welded in center of V-blade opens frozen drifts . . . eliminates plowing snow back on road when widening. Adjustable runner shoe, big tires protect road surface. Clears, widens at 25 m.p.h. cruising speed . . . Carryall on rear can be loaded for extra drift-busting weight.

5 7-TON TOURNACRANE

lifts up to 29½' . . . reaches 31' . . . handles 7 tons with exceptional load maneuverability. Easy, finger-tip electric control of load hoist, and sliding boom on tilted track. Goes anywhere . . . on pavement, through sand, mud . . . handles structural work, unloads supplies . . . saves you time and money on every job. Quickly hooked up or uncoupled as needed.

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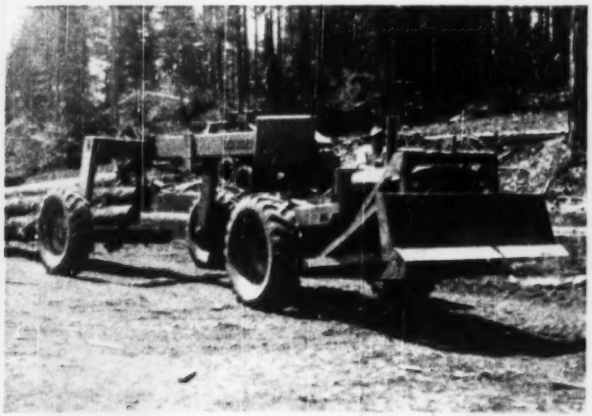
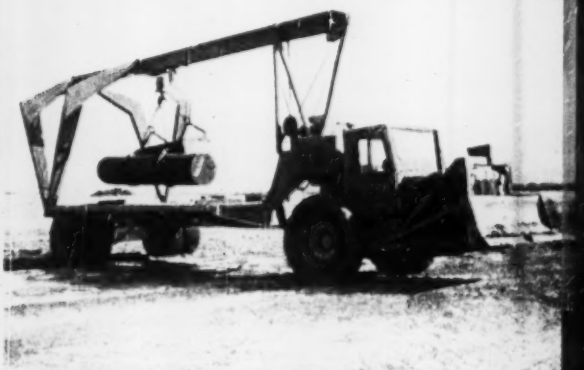
2 **BULLDOZER** on rubber-tired "D" gives you a 25 m.p.h., "drive anywhere" dozing unit for light clearing, backfilling, pusher-loading other "D's" in fleet operation. Husky 6'8¾" x 2'8½" blade has reversible cutting edge, replaceable tips . . . 3' blade lift . . . electric controlled. Operates independently of Carryall on rear. Bulldozer-Carryall combination often saves cost of an extra man and machine.

3 **9-TON TOURNAROCKER**

assures steady, year-round profits . . . keeps "D" busy earning extra savings on your own jobs . . . good pay on sub-contracts or rentals. This new rear-dump hauling unit has 10 heaped yd., 9-ton capacity . . . low 7'0" loading height . . . 14' x 5" wheelbase . . . 12'2" turning radius. Simple, electric body hoist. Dumps clear over bank, tips vertical, cleans fast.





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6 **10-TON LOGGING ARCH**

offers another profit opportunity for the 122 h.p. "D". Hoists, skids 10-ton log loads over rough terrain . . . big, low-pressure tires, and power-proportioning differential of primemover, provide easy-rolling flotation and constant-pull traction. Ample load clearance . . . 7' wide, 6'9" high inside arch. Can be used with Bulldozer on front . . . all electric control.

7 **10-TON TOURNAHAULER**

Big 21'3" x 8'7" flat-bed hauls heavy construction, oil field, logging, mining equipment and supplies on or off highway. Loads itself by traveling overhead monorail, with 10-ton electric hoist . . . reaches out 10'1¾" beyond end of flat-bed . . . lifts load up to 12'1". One-man operated. Quickly pays for itself . . . easily interchanged with other units.

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- ☐ LOGGING ARCH

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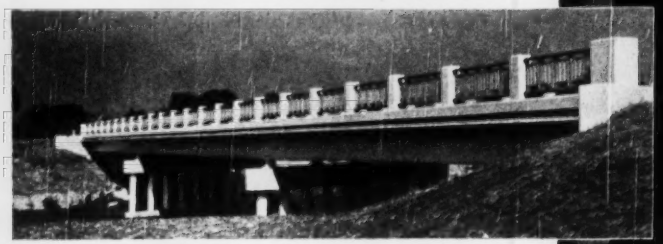

WHEN MONOTUBES GO IN!

Bridge on Ohio State Route 161, near Granville, with Monotube steel foundation piles. Another example of the adaptability of Monotubes for any type job.

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Take weight, for example. Although Monotubes are inherently strong, they're light in weight and easy to handle. That made it possible on a recent job for the contractor building an overpass to move in with a light truck crane, over a difficult access road, and within 4 hours start driving Monotubes!

And consider Monotube strength. In the job pictured above, single rows of Monotube piles form the piers . . . without longitudinal bracing. *Acting as columns*, these Monotube piles not only provided the necessary strength but saved approximately 90% of the concrete in solid pier construction. In addition, the fluted columns add to the beauty of the structure.

Here are *more* cost-saving, time-saving Monotube advantages. They're easily extendible. There's minimum cut-off waste. And, jobs started with Monotubes can be *completed* with them because they come in a range of lengths, gauges and tapers adaptable to varying soil conditions and different types of structures.

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Monotube Foundation Piles

MEN AND JOBS

Lt. Col. Wright Hiatt has become deputy chief of civil works for flood control in the office of the Army Chief of Engineers. Maj. Gen. Lewis A. Pick, under whom he served in the building of the Ledo Road during the war, has been on the staff of the Engineer School, Fort Belvoir, since June, 1948. In his new post, he succeeds Lt. Col. Herbert C. Gee, flood control deputy chief since October, 1947. Colonel Gee resigned from the Army April 14 to enter private engineering practice in West Palm Beach, Fla.

Everett L. Setzer, of New London, N. C., has been selected to receive the annual award given to employees of the North Carolina State Highway Commission for meritorious service. A road foreman, he has been with the commission for 25 years and has designed and built three dryers for sand and other aggregates which cost only $250 each. The award is made annually as a memorial to the late D. B. McCrary, former chairman of the N. C. Highway Commission.

Thomas E. Huffman, of the Texas Highway Department, has become highway manager of the Dallas Chamber of Commerce. A district engineer for the state highway department at Lufkin, Beaumont and Dallas, Huffman became engineer-manager of Dallas Urban Expressways in 1945. **R. F. Killmer**, 30 years with the department, will be transferred from Beaumont to the Dallas expressways assignment. He will be succeeded as engineer for the Beaumont district by **William Edwin Simmons**, now assistant engineer. Huffman is a 1907 graduate of Ohio Northern University. Killmer holds a civil engineering degree from the University of Texas, 1913, and Simmons from Texas A. & M. College, 1922.

Harold B. McElwain, associate engineer in charge of construction for Rochester, N. Y., has been promoted to director of maintenance in the public works department. **Remington H. Kohler**, principal engineer, also has been given expanded duties.

Wilson V. Binger has joined Porterfield Binger Construction Co., general contractors of Youngstown, Ohio, as vice president. He has also opened a consulting engineering office at 222 West Raven Avenue, Youngstown. He has been in Buenos Aires, Argentina, since 1948 as chief soils engineer for Parsons, Brickerhoff, Hill, and Macdonald. He had previously been chief, soils and geology branch, Missouri River Division, Corps of Engineers, and chief, soils and foundations section, Special Engineering Division, the Panama Canal.

H. G. Clappison has been appointed vice president and general manager of

OUTFALL SEWER BUILDERS—Discussing details of the 3-mile-long outfall sewer (two on land and one under water) being built to serve Oakland, Calif., and nearby cities, are left to right: W. R. McLean, who supervises construction; R. C. Kennedy, manager of sewage disposal engineering and construction; John W. McFarland, acting general manager, and Otto C. Bohl, resident engineer on the outfall. All are officials of the East Bay Municipal Utility District. Photo was taken on the district's launch during an inspection trip of the work offshore in San Francisco Bay.

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15% to 20% more air @ 100 lbs. does 30% to 40% more work

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Jaeger "new standard" ratings (the first increase in the industry since 1932) give you the air you must have to run today's tools at proper pressure and efficiency—75 ft. of 100 lb. air instead of 60—125 ft. instead of 105—185 ft. instead of 160—250 ft. instead of 210—365 ft. instead of 315—600 ft. instead of 500. If this cost-saving interests you, send for Jaeger Catalog J-6.8.

600 ft. of 100 lb. air — Runs 2 big wagon drills at full pressure, drilling 30% to 40% more footage than you can get with any 500 ft. compressor.

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High pressure chamber, chromium-plated for maximum corrosion resistance.

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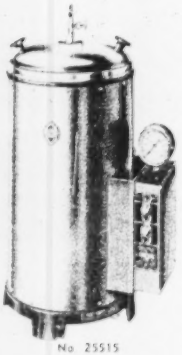

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Frank Preston Eiler, engineer consultant to the division engineer, North Atlantic Division, Corps of Engineers, New York, has retired after 25 years. Much of his service was on studies of the St. Lawrence River project. Other assignments included development of the flood control programs on the Merrimack and Susquehanna River basins, studies of the Passamaquoddy tidal power project, and consulting service on the Buggs Island and Philpott multiple-purpose projects now under construction on the Roanoke River.

J. S. Innes Limited, Toronto, Ont., equipment distributors for contractors, logging companies and mines. Mr. Clappison is a civil engineer, a graduate of University of Toronto, and is well known in contracting and construction circles throughout Canada.

H. B. Hines, Sanford, N. C., civil engineer, has been named city manager there. He served as a lieutenant colonel in the war.

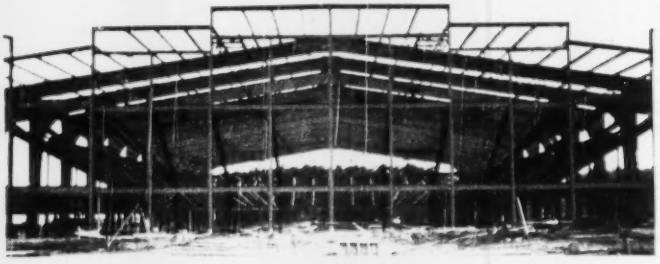
Arch Skeen, who has been associated with the Red River ordnance's water works department close to Texarkana, Tex., has been made superintendent of the city water department of Bonham, Tex.

E. D. Eaton, assistant director of operation and maintenance, Bureau of Reclamation, has been named acting director. He has been with the bureau since 1943. Before the war he was with the Soil Conservation Service in Albuquerque, N. M., and the west.

Geo. R. Halton, formerly design engineer, O. J. Porter & Co., is now a consulting engineer on earthwork, aggregates and foundation soils at 1060 Broad St., Newark 2, N. J.

(Continued on page 71)

How to Get the Most for your Steel Dollars



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Ingalls fabricated the steelwork for this new Coliseum, seating 14,000 persons, at the North Carolina State College, Raleigh.

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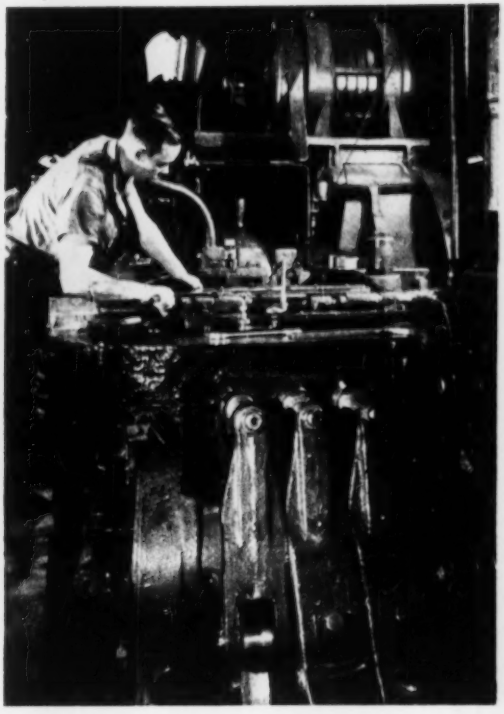

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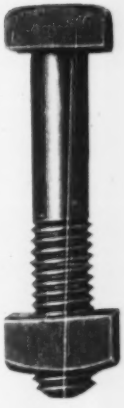
Judd Barner operates a Lorain Power Shovel for the Dallas County Road Commission, Fordyce, Arkansas. Says Judd: "It is a tough little machine and I enjoy operating it."

Men like Judd Barner who are helping to build a better America know that a machine —like a man—is only as strong as its muscles . . . which, in the case of Judd's shovel, are its fasteners.

To be sure its shovel will withstand the bone-rattling service Judd will give it, The Thew Shovel Company insists upon top-quality fasteners—which pay off in dependable performance out on the job.



John Waring operates a bolt-maker in RB&W's Port Chester plant. Automatic cold-heading, which RB&W originated, accounts for the superior strength, greater accuracy, almost perfect uniformity and improved appearance of RB&W bolts.

Here, and in other manufacturing steps, RB&W builds into its bolts and other fasteners the maximum soundness that enables them to resist the shocks of such service as Judd Barner and his shovel will give them.

Fasteners, which keep a product well-muscled, cost so little compared to the other components . . . isn't it sensible to specify the soundest fasteners?

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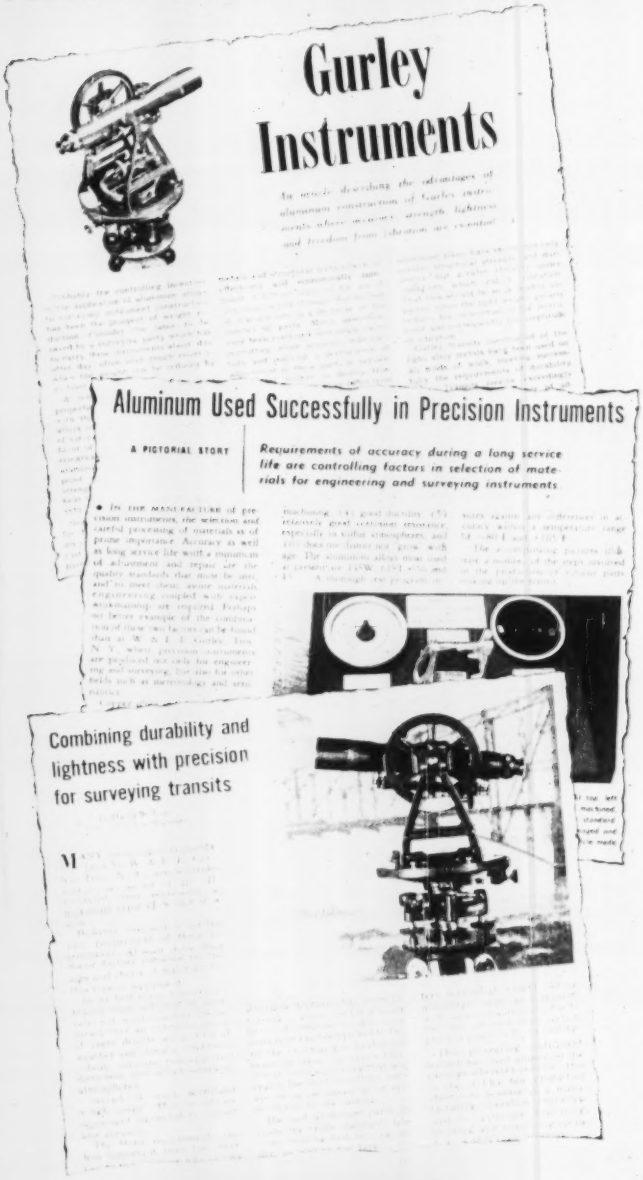
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"Have been using your instruments since 1906, which I purchased for surveys in Mexico—and they are as good as ever."

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"Your instruments can take it. I have been using a Gurley Transit here in Europe for the past year under the roughest kind of treatment and it is still in perfect adjustment."

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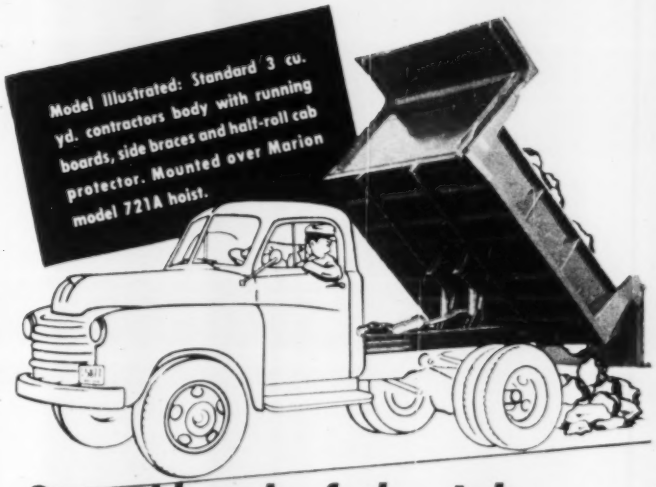
Ernest Hillman, of the Los Angeles structural engineering firm of Hillman & Nowell, who was recently made president of the Structural Engineers Association of Southern California.

Alfred B. Lewellen, for more than 30 years an engineer with the United States Bureau of Public Roads, has retired. He served as engineer in charge during construction of portions of the Willamette and North Santiam highways in Oregon when they were built through the Cascade Range. During the war he worked on the Alcan Highway.

A. J. Haagen-Smit has taken a year's leave of absence from the California Institute of Technology to become director of air pollution research for Los Angeles County.

Pressure grouting a 17-ft depth of subsurface strata of faulted shale, including an abandoned coal mine, to support the new 11-story Veterans Administration General Medical Hospital in Pittsburgh, Pa., is in charge of, left to right, J. P. Renouf, resident engineer, Corps of Engineers; Frank G. Cannon, Sr., president, Cannon Diamond Drilling Co., contractor on the $388,000 contract; and J. S. Minnotte, assistant chief, Construction, Pittsburgh District Corps of Engineers.


Model Illustrated: Standard 3 cu. yd. contractors body with running boards, side braces and half-roll cab protector. Mounted over Marion model 721A hoist.

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ELECTIONS AND ACTIVITIES

Cleveland, Ohio, Society of Professional Engineers has elected Paul A. Harlamert, president; C. Austin Beck, vice president; Fred Gaub, renamed treasurer; John Barrett, renamed secretary, and Sol Baner, renamed historian.

Northwest Ohio Section, American Water Works Association, recently organized, has elected George L. Van Dorp, Toledo water division commissioner, as chairman; Pierce Bailey, engineer in the Toledo water division, secretary, and Roy Reilly, waterworks superintendent at Bucyrus, Ohio, program chairman.

Lt. Gen. Raymond A. Wheeler, engineering adviser of the world bank and former chief of engineers, was installed as president of the Society of American Military Engineers at the group's 50th annual meeting in Washington recently. Other officers for this year include Rear Adm. Lee Otis Colbert, retired director of the U. S. Coast and Geodetic Survey, as first vice president, and Comdr. John A. Volpe as second vice president. Continued in office are Col. E. Goring Bliss, treasurer, and Col. F. H. Kohloss, executive secretary.

Indiana Engineering Council, organized to coordinate the efforts of all engineering and technical groups throughout the state, has elected G. E. Switzer, Indianapolis, as president, succeeding Prof. H. L. Solberg. Col. Chester Lichtenberg, Fort Wayne, was elected vice-president.

Charles D. Zacher was elected president of the Engineering Society of Buffalo at the annual meeting in Hotel Statler. Other new officers are Arthur L. Uhlandt, vice president; Robert K. McKeegan, Jr., secretary, George Nachbauer, treasurer, and Edward L. Kleindinst, George H. Schleicher, Andrew O. Stilwell and Alfred K. Warren, Jr., directors for three-year terms.

Elliott I. Daniels has succeeded Hans Gottman as president of the Trenton, N. J. Engineers Club. Other officers: M. J. Kinney, first vice-president; N. A. French, second vice-president.

(Continued on page 74)

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The light weight of this strong K&M Asbestos-Cement Pipe cuts shipping and haulage costs sharply; permits of more economical laying equipment; saves many dollars' worth of time. Even when a radius requires as much as 5° deflection per pipe length, it is easily swung with the "Century" Simplex Flexible Couplings regularly used. This feature, in conjunction with lightness, speeds up any alignment needed before backfill.

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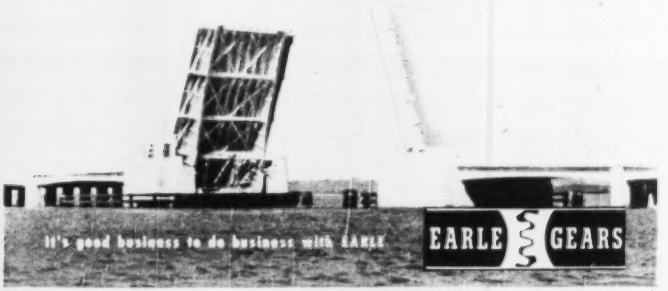

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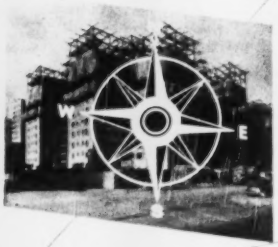

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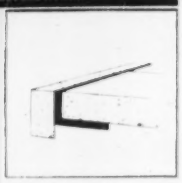

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dent; A. D. Bullock, treasurer; and E. C. Claus, secretary.

James F. Salmon, New York manager of The Arundel Corp., has been elected president of The Moles. Ralph W. Atwater has been made life honorary president. Other new officers are R. V. Hyland, 1st vice-president; David Bonner, 2nd vice-president; Albert E. Downes, sergeant-at-arms; and H. P. Maxton, treasurer.

Clarence Burdick, superintendent of utilities at Grand Island, Neb., is president of the Nebraska chapter of the American Water Works Association. Other officers: Vice-chairman, Eon Wright; Roy Case, national director for Nebraska.

Toledo Chapter, Ohio Society of Professional Engineers, has elected Guy E. Nepper, Lucas County engineer, as president; C. W. Cisco, vice-president; Elmer R. Bingham, secretary; W. F. Kramer, treasurer; Charles A. Braun, Jr., Ralph S. Nopper, and W. H. Steinhauer, directors.

At its last formal meeting of the season, the Junior Branch of ASCE's Metropolitan N. Y., section elected the following officers: Arthur J. Fox, Jr., president; Edward Wesp, 1st vice-president; John F. Mollov, 2nd vice-president; Robert K. Lockwood, secretary; Paul W. Freitag, treasurer.

John W. Klag, commissioner of streets for Toledo, has been elected president of the newly-organized Ohio Association of Street Maintenance and Sanitation Superintendent and Commissioners. Others elected were Charles E. Brokaw, superintendent of highway maintenance for Cincinnati, vice-president; and Albert Peterson, superintendent of streets for Youngstown, secretary-treasurer.

MAJOR MEETINGS

Pennsylvania Sewage Works School, State College, Pa., June 19-23.

American Congress on Surveying and Mapping, 10th anniversary meeting, Hotel Shoreham, Washington, D. C., June 21-25.

Pennsylvania Water Works School, State College, Pa., June 26-30.

Ohio Sewage & Industrial Wastes Treatment Conference, Hotel Gibson, Cincinnati, Ohio, June 28-30.

Annual Conference on the Small Communities, Yellow Springs, Ohio, June 30-July 2.

American Society of Civil Engineers, annual convention, Royal York Hotel, Toronto, Ont., July 12-14.

Pennsylvania Water Works Operators' Association, annual conference, State College, Pa., Aug. 21-23.

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You can enjoy rock-bottom transportation costs and a brighter profit picture when you invest in a Dodge "Job-Rated" Truck.

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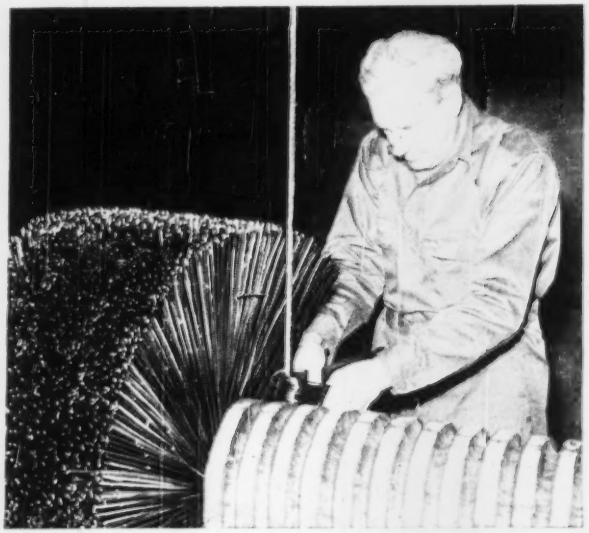
The new Modglin Permene fibre now being tested by New York City Department of Sanitation.

SWEEPS BETTER: Permene wears slowly and evenly, retaining its "flicking action" always. Therefore uniform contact with surface swept is maintained; there is less strain on equipment; and better sweeping performance is obtained.



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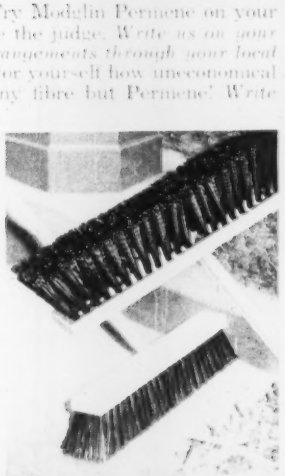
The #1024 Perma-Push is the most efficient and long-wearing push broom ever built for street use. Its extremely durable Permene fibre is resistant to common petroleum products, to cleaning solutions and to water. Fibre never gets heavy, wet or matted, yet retains its "flicking action" at all times. Work surface will not be scratched, gouged or torn up by this broom. The #1024 Perma-Push has so much longer life and offers such low cost per sweeping that you can afford to sweep more often and keep streets cleaner all the time. Write for detailed information.



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OBITUARY

Leon Schoonmaker, 68, former Long Island, N. Y., highway engineer, died at Forest Hills, N. Y., May 30. A year after his graduation from Princeton University in 1904, he became associated with the work of planning and developing the Long Island highway system. He continued to work for the Borough of Queens until his retirement in 1945. He planned the Horace Harding Boulevard. In the first world war he saw 15 months' service in France as a major in the engineering division for the Allied Expeditionary Force. He was a champion in fencing and golf.

Yacoub Zadigian, 76, a civil engineer, died at New Milford, N. J., May 20. Before coming to this country he had served 35 years with Turkey.

Arthur T. Clark, 65, a civil engineer and manager of the Water & Sewage Works Manufacturers Association, New York, died at Morristown, N. J., May 24.

Raymond A. Jones, executive vice-president of the J. A. Jones Construction Co., Charlotte, N. C., died May 8 in Bolivia, where he was on inspection work for his company.

Matthew J. Cummings, 55, president of the Matthew Cummings Co., New England construction firm, died May 29, in Dorchester, Mass. He worked for the Boston Park Department for a number of years, until his father, the late Matthew Cummings, founded the construction firm. He assumed control of the business at his father's death in 1938.

A. Clinton Decker, 63, civil engineer, died in Birmingham, Ala., May 22. He received a civil engineering degree from Cornell University. For a number of years he was sanitary engineer for the Tennessee Coal, Iron & Railroad Co.

John B. Cabell, 34, a civil engineer with J. S. Sirrine Co., of Greenville, S. C., was killed in an accidental fall at White Water Falls, S. C., May 27. He was an honor graduate of Virginia Military Academy. In 1939 he took a fellowship at the California School of Technology. After getting his master's degree in civil engineering he went on active duty with the Corps of Engineers. He was area engineer at Camp Stewart, at Harris Neck airfield, the construction of which he

(Continued on page 78)

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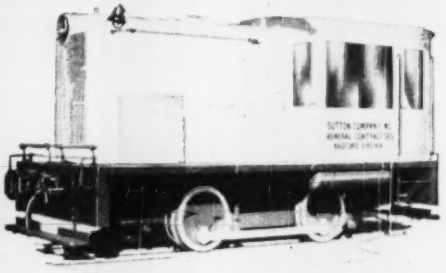

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supervised, and for which he received the Army Commendation Ribbon.

Henning O. Christiani, 58, a civil engineer of Scarsdale, N. Y., was killed in an automobile accident in France May 25. He was a graduate of the Polytechnical University of Copenhagen, Denmark, and was connected with the Christiani and Nielsen Corp. of New York. He came here in 1926 and gained experience in engineering design on projects including the N. Y. City West Side Highway and New York World's Fair, and as consulting engineer to New Haven, Conn. In 1938 he entered the Copenhagen head office of Christiani and Nielsen. One month after the Nazi invasion of Denmark he returned to this country. He established a wartime central office in New York for the firm's branches in Allied countries, and extended the company's activities in South and Central America. During the war Mr. Christiani was a member of the U. S. Army Engineer Corps, and served on the staff at Fort Belvoir.

Frederick Duane Sheffield, 66, a bridge engineer in the King County engineering department, Seattle, Wash., died May 28 at Seattle. A graduate of Cornell, he had lived in Seattle for 35 years.

James Addison Jones, 80, founder and chairman of the board of the J. A. Jones Construction Co., Charlotte, N. C., died May 25. He maintained an active interest in the firm as chairman after relinquishing the office of president to his son, Edwin L. Jones. One of the principal builders of the Oak Ridge, Tenn., atomic project, the company operated shipyards at Panama City, Fla., and at Brunswick, Ga., during the war and, in addition to many large projects in this country, since has been engaged in construction projects on Okinawa and in South America.

John M. Picton, 47, chief planning engineer of Kansas City, Mo., died in Washington, D. C., May 19.

Ray Dunlap, 65, a Missouri Highway Department employe more than 25 years, died May 24. Formerly he was city engineer at St. Joseph for two years, then worked for the highway department at Joplin and Jefferson City.

Frank Lee, 77, district engineer for the Canadian Pacific Railway at Vancouver, B. C., for 14 years, and who retired in 1941 after 38 years of service with the railroad, died at Nanaimo, B. C., May 21.

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(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

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(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

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(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply SIKA-KOTE prevents penetration of groundmoisture.

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UNIT PRICES BID BY CONTRACTORS

Bituminous concrete road, Wicomico Co., Maryland

A low bid of $659,707, Apr. 18, took the contract for 6.315 miles of bituminous concrete with macadam base course in Wicomico County, on U. S. Route 50, for the Maryland State Roads Commission. This was only 7.3% under the high of five bids, 4% under the next to low bid.

Alternate prices on slag and stone were 60 cents per ton apart on the low bid with the contract awarded on the slag alternate at $7.95.

Work started May 1 and must be completed in 200 working days. The job is midway between Salisbury and Mardella, 5 miles from a railhead.

Class I excavation includes all excavation within cross-section of the improvement, surfacing area and intersections over 15 feet in width. Cl. 2 covers approach roads under 15 feet, drainage structures, culverts and headwalls; Cl. 3 ditches, channel changes.

The minimum cement content in Class P-1 concrete is 1.5 bbl per cu. yd. with net water content 5.5 gals per bag of cement.

Wage rates prevailing are: unskilled labor, $0.90-1.00; semi-skilled, $1.40-1.50; skilled, $1.75-1.90.

1 J. E. Edgar Russell, Frederick, Md. — Contract — $659,707.45
2 N. & L. Beer Co., Durham, N. C. — 668,138.15
3 Bero Eng. & Constr. Corp., Hampton, Va. — 711,226.75

Items	Quan.	Unit	Unit Prices 1	2	3
Clear & grub	1	L.S.	$13,500	$25,000	
Excav. Cl. 1	cy	57,500	.52	.57	
Cl. 2	cy	2,900	1.50	1.50	
Cl. 3	cy	1,600	1.60	1.50	
Borrow	cy	276,000	.52	.55	
Compact fill	cy	1,700	1.50	1.00	
Trim exist. ditches	lf	500	.10	.10	
Remove exist. inserts	cy	30	8.00	5.00	
Crusher run agg.	cy	1,500	.90	3.00	
Mac. base course	cy	97,600	1.20	1.20	
Bit. mat'l	gal	310,000	.20	.20	
Prime mac. for cr.	sy	90,700	.08	.05	
Stabilized shoulders	sy	81,000	.94	.90	
Calcium chloride	lb	75	15.00	65.00	
Pen. mac. surf. T.	sy	6,900	.35	.24	
Bit. mat'l pen. mac.	gal	245,100	1.25	1.1	
Bit. cem. agg.					
B-1 stone	t	161	8.55	9.00	
B-1 slag	t	143	2.95	2.50	
B-2 stone	t	220	8.55	9.00	
B-2 slag	t	190	2.95	2.50	
B-3 stone	t	200	8.55	9.00	
B-3 slag	t	180	2.95	2.50	
B-25 stone	t	9,600	8.55	9.00	
B-25 slag	t	8,065	2.95	2.50	
5" cul. clay pipe	lf	50	1.00	1.00	
12" Reinf. conc. p.	lf	4,200	2.50	3.00	
18" RCP	lf	1,012	3.20	4.00	
24" RCP	lf	1,000	4.50	5.00	
30" RCP	lf	343	5.60	6.00	
36" RCP	lf	241	11.00	8.00	
42" RCP	lf	132	25.00	9.00	
ACCMP					
12" spun, 14 ga.	lf	96	3.00	3.50	
24" spun, 12 ga.	lf	40	5.50	6.00	
30" spun, 12 ga.	lf	76	8.00	7.00	
Reinf. pipe arches	lf	120	4.00	5.00	
Reinf. pipe culv.	lf	100	4.00	4.00	
Conc. C.I.P.-1	cy	125	60.00	20.00	
Reinf. steel bars	lb	6,200	.11	.10	
6" perf. pipe underd.	lf	1,000	1.00	1.00	
Pipe outlets	lf	250	1.00	1.00	
Misc. backfill	cy	500	5.00	4.00	
Guard rail, Type I	lf	200	1.00	1.00	
Guard rail, Type II	lf	200	1.00	1.00	
Foot anchorages	ea	14	50.00	50.00	
Maint. traffic		L.S.	11,000	10,000	
Crusher Run agg.	t	6,000	3.50	3.00	
12" topsoil, std.	sy	90,000	.12	.14	
Seed & mulch	sy	90,000	.10	.12	
Solid sod	sy	21,600	.25	.25	
Precast R.O.W. mkrs.		200	3.00	6.00	

Refuse incinerator for Waterbury, Conn.

Second low of five bidders, F. H. McGraw & Co., Inc., Hartford, Conn., was awarded the contract for a 500 ton capacity, pit and crane refuse incinerator in Waterbury, Conn., at $586,607.27. This is a unit cost of $1,289 per ton. W. J. Megin, Inc., Naugatuck, Conn., low bidder at $585,784.83, bid informally and his bid was not accepted. Malcolm Pirnie Engineers, New York, are consultants.

Work on the incinerator was started April 17 and must be completed in 270 days. The site is near the highway and two miles from a railhead. Wage rates prevailing are: carpenters, $2.12½ per hr.; reinforcing steel workers, $2.50; electricians, $2.25; laborers, $1.55.

The contractors could bid on A, a circular, mechanically-stoked furnace or B, a rectangular, hand-stoked furnace and alternates on the chimney, bridge crane and incinerator. The three lowest bidders submitted bids for both plans. The contract was awarded on Type A with "Kellogg" chimney, "Shaw-Box" bridge crane and "Nichols" incinerator.

1 W. J. Megin, Inc., Naugatuck, Conn. — $585,784.83
2 F. H. McGraw & Co., Inc., Hartford (Contract) — 586,607.27
3 DeFonce Const. Co., Inc., Bridgeport — 622,170.00
4 Pyle-Adams Corp., Brooklyn, Mass. — 626,700.00
5 Waterbury Const. Corp., Inc., Waterbury, Conn. — 638,265.00

Type A Circ., mech-stoked furnace

Items	Quan.	Unit	Unit Prices 1	2
Earth excav.	cy	1,200	$1.50	$1.04
Ftl. from borrow	cy	500	2.50	1.32
Rock excav.	cy	500	11.00	5.24
Struct. steel	t	97	2,041.00	2,127.51
Incin. bldg. etc.	lb		153,258	159,235
Chimney				
"Carbofin"	lb		19,345	22,121
"Kellog"	lb		21,947	21,829
"American"	lb		20,500	
Bridge crane				
"Shepard Niles"	lb			30,000
"Shaw-Box"	lb		25,212	27,264
"Harnischfeger"	lb		28,879	33,751
Incinerator, etc.				
"Nichols"	lb		120,000	112,900
"Morse-Boulger"	lb		120,000	
Adj. handle equip.	lb		21,974	22,104
Elect. work	lb		13,465	14,102
Addl. concr.	cy	50	10.00	10.94
Addl. reinf. steel	lbs	1,000	0.10	0.105

Type B Rect., hand-stoked furnace

Items	Quan.	Unit	Unit Prices 1	2
Earth excav.	cy	1,500	$1.00	$2.00
Ftl. from borrow	cy	900	2.50	1.32
Rock excav.	cy	600	11.00	5.29
Struct. steel	t	97	2,041.00	2,065.22
Incin. bldg. etc.	lb		164,224	157,297
Chimney				
"Carbofin"	lb		19,167	20,883
"Kellog"	lb		20,500	20,663
"American"	lb		21,997	
Bridge Crane				
"Shepard Niles"	lb			30,000
"Shaw-Box"	lb		25,269	27,313
"Harnischfeger"	lb		29,009	32,647
Incinerator, etc.				
"Pitt-Des M."	lb		139,359	149,492
Adj. handle equip.	lb		22,059	21,413
Elect. work	lb		13,957	14,312
Addl. concr.	cy	50	10.00	39.500
Addl. reinf. steel	lbs	1,000	0.10	0.105

Equipment Costs Less to Maintain ... Produces More

WHEN LUBRICATED ON-THE-JOB WITH ALEMITE PORTABLE SERVICE STATIONS

Now sectionalized to give you just the greasing rig you want, these new Alemite units allow whatever choice of chassis pumps, gear-oil pumps, reels and hand-meters you require. Alemite combines them into platform units that can be put together into one, portable outfit for on-the-job lubrication of your trucks and equipment.

No matter *how* far afield your construction equipment is working, every machine you operate gets faster, better lubrication *at lower cost!* Air-operated pumps deliver oil or grease direct from barrel-to-bearing, right on the job. Downtime for lubrication is cut. Lubricants are not exposed to dirt or dust. And you avoid costly bearing failures.

Any Portable Service Station you need can be easily assembled from these new, *sectionalized* Alemite units.

Other heavy duty pumps, reels and accessories are also available for 400-lb. and 54-gal. capacity drums.

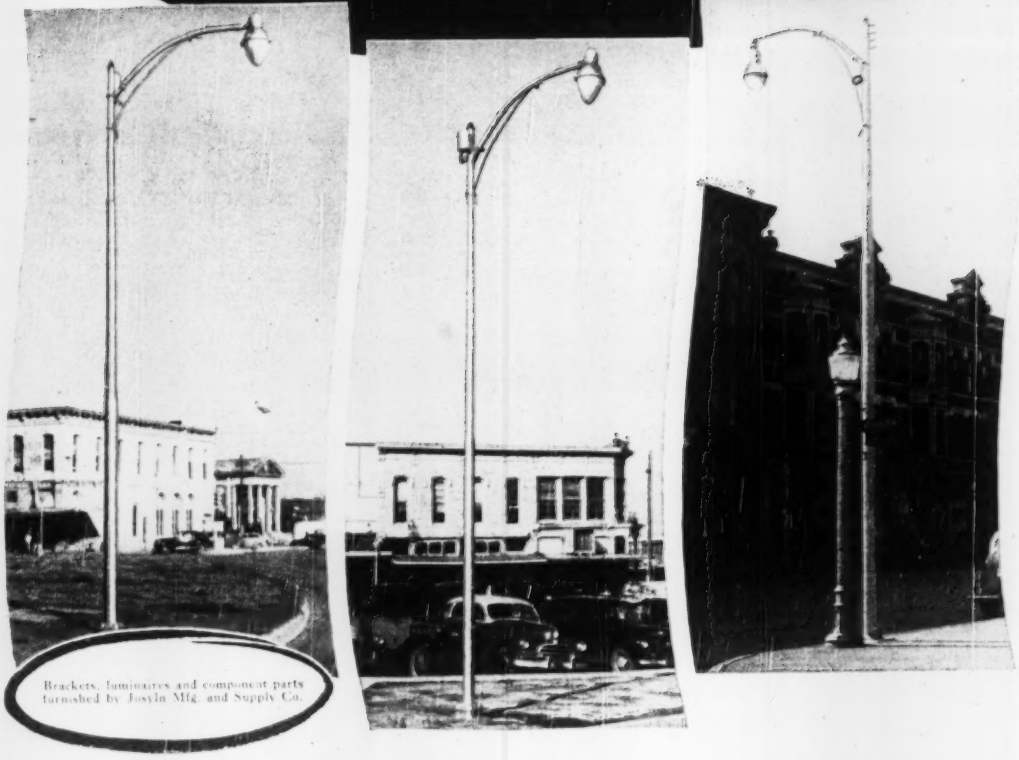
WRITE TODAY for your *free*, illustrated catalog! Address inquiries to Alemite, Dept. G-60, 1850 Diversey Parkway, Chicago 14, Illinois.

Alemite Pumps, air-operated, for delivering chassis grease and gear oil from 100-lb. drums. Available for individual or "group" installations.

Alemite Hose Reels for high and low pressure delivery of chassis grease, gear oil, engine oil, air and water. Available in single or multiple units to suit any requirement.

ALEMITE STEWART WARNER

Spruce Up your streets with these smooth steel poles



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You've taken a major step toward beautifying your community when you replace obsolete, irregular poles with modern, good-looking tubular steel standards. They're slim, because steel is stronger. You can have greater height with smaller pole diameter. And that's a big safety feature because there is less visual obstruction. Less safety hazard.

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UNITED STATES STEEL

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.
ELSIE EAVES, Manager J. A. MAHONEY, Reports M. R. ROESSLER, Statistics

WATER SUPPLY

BIDS ASKED

Ont., Port Hope—E.A. 6-24—Municipal Water Works Comm., Port Hope Water Purification Plant. Project #57. Clarifier & Chlorine Units. Rec'd. 6-27.

Ia., Grand Junction—E.A. 6-20—City, City Hall. W.W. Improvements. Rec'd. 6-23.

Mo., St. Louis—E.A. 6-22—Bd. of Public Service, Room 314, City Hall, Kingshighway & Delmar Blvd., St. Louis 12. Sewer Improvements. Proposals will be received until 10 a.m. June 14 for furnishing all labor, materials, equipment and services necessary for the construction of Sewer District Improvement Ordinance No. 24,000, Sewer District No. 62 and Improvement Ordinance No. 24,001, Sewer District No. 63. Plans and specifications may be examined at the office of the Board of Public Service, Room 314, City Hall, St. Louis 3, Mo. Thos. J. Dockery, City Hall, engr. CD 6-27.

Ont., Toronto—E.A. 6-20. Elec. Bd. Control, 42 Jn. water supply mains, 4 to 8 in. diam. Contract No. 6-1950. Plans about June 30. M. Streets, city engr. CD 6-2.

† D. C., Wash.—E.A. Six or About 6-22—S. Eng. Front and Bunker Hill N. W. Improvements, Sec. 2, at Georgetown Reservoir, Water Service Area, about 1 mi. west of Georgetown. CD 5-14-44.

† Md., Annapolis—E.A. 6-22. Fire Dist. Office, U.S. Naval Academy, Annapolis. Furnish, install and remove all required steel, water, power and sewage connections and installation of one 50,000-gal. portable elevated tank. Specification No. 24135. Plans deposit $10.

Fla., Hummell Wharf—E.A. 6-22—Homelite Wharf Marina Area at Miami Tax Detail Road, Hummell Wharf, water main, fire hydrant, sewage system and sewage treatment plant. Plans deposit $40. Richard E. Harman, 222 North Federal St., Hammond, Ind.

Tex., Brownsville—E.A. 6-22—City, 24 in. water main, 3 mi. Specifications City Engr. CD 5-26-44.

Minn., East Grand Forks—E.A. 6-23. City, A. G. Rose, 14 W. 10th Place, Chicago, Ill., 3 reservoirs, sewage ejection station, force main to plant, 2250-gpm. capacity, pump, etc., $110,000. Plans deposit $20. Elmer A. Ruddick, Grand Forks, N. D., Asstl. CD 2-28.

Tex., Houston—Bids Asked—City, Forest Dist., $111. Cutler St., water lines, Sect. II. Bus. Forests, $36,000.

Tex., Houston—Bids Asked—Thomas A. Robinson, City Natl. Bank Bldg., water lines, sewers, paving, etc., addition at Westway and Sage Rds. $40,000.

Tex., San Antonio—E.A. 6-22—Lewis F. Brooks & Assoc., Security Trust Co., South Texas Bldg., water lines, facilities, 114 acre tract SW. Kinney Rd. and Hillcrest Dr. $50,000.

LOW BIDDERS

N. H., Hooksett—Town Water Dists., Town Hall, Manchester, water mains, etc., Whitehall Rd. area. Kimball, Alley, 28 Russell St., Keene. $40,029.

Whitman & Howard, 89 Broad St., Boston, Mass., engrs.

CONTRACTS AWARDED

Mass., Franklin—Town, 10 Water Comrs., 3 in. water mains in various streets, Franklin County. CD 2-9. Supply, T. Fortuna. $16,832.

N. Y., Niagara Falls—City, City Hall, $1,000,000 water, sewer, pavement improvements in area bounded by Niagara River, Buffalo Ave., Hyde Park Blvd., Niagara Falls Blvd. and Niagara Falls. Bids 6-13. Ayer & Lord Tie Co., 217 Ayer Ave., College Point, Mass. $756,728. Bids 6-13. CD 6-1-44, under LB.

Tex., Houston—Bids Asked—City, City Natl. Bank Bldg., water lines, etc., addition at Westway and Sage Rds. Whitman & Howard, 89 Broad St., Boston, Mass., engrs. $34,441. E. G. Pearson, 1010 Wisteria St., engr. CD 5-24.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Mich., Detroit—E.A. 6-20. Dist. E. Wks., City Hall, Courts, Fifth Street comm., East Jefferson Ave. Intercepter Sewer Improvements No. 3. Rec'd. 6-23.

▲ Mass., Brookline—E.A. 6-22. Town Engr. B. Tyler, Town Bldg., Room 59, Brookline. Sewer Improvements, $2,000,000. Plans deposit $50. Merrill & Hopkins, 1338 Statler Bldg., Boston, engrs. CD 6-6-44.

N. J., Haddonfield—E.A. 6-26. Haddonfield Boro., sanitary sewage system, 2 pump stations, $100,000. Walter H. MacNamara, 201 N. 2d St., Phila., Pa. engr.

Calif., Eureka—E.A. 6-27. City, City Hall. 3 sewage treatment plants on Murray Rd., Jacobs Ave. and Avenue, Arcata. $1,200,000. Plans deposit $60. Harold A. Kelly, 621 Hilgard Bldg., Los Angeles, engr. CD 7-25.

Conn., Middletown—Bids Asked—City, P. Wks. Dept., Main, Washington, Union, Lincoln and Butternut sanitary sewers, connecting to existing sewers in Butternut Ave., Union St., Brainerd Ave., Lincoln St., Washington Ave., Union St., Brainerd Ave. and Vine St. Rec'd. 6-23.

Tex., Houston—Bids Asked—City, Forest Dist., $121. Cutler St., sanitary sewer lines, Sect. II. Bus. Forests, $36,000.

Tex., San Antonio—Bids Asked—City, P. Pfeiffer & Assoc., Security Trust Co., South Texas Bldg., sanitary sewer facilities, 114 acre tract SW. Kinney Rd. and Hillcrest Dr. $50,000.

La., Lafayette—City, to Bids May 26, sanitary sewer extensions, sewage pumping station, force main, etc., Contract No. 1. Plans deposit $20. Bonvillain & Moulton, engrs. CD 5-19.

Tex., Houston—Bids Asked—City, Forest Dist., $915,450. Cutler St., sanitary sewer lines, Sect. II. Bus. Forests, $36,000.

LOW BIDDERS

Ont., Toronto—City, Ashbridges Bay Sewage Treatment, Contract 3, sewage plant, sludge and incineration buildings, steel, steel piles, and equipment, boilers, stoker, conveyors and fans. Bid Apr. 26. Dept. Public Wks. Steel Erec. Assn. $823,848. CD 4-28-44.

Conn., Middletown—City, P. Wks. Dept., City Hall, sanitary sewers along Lake to Butternut St., from Land to Washington St., Fairview Ave., from N. Main to S. Main St., Lin. St., $72,187. Angelini Assoc., 73 Trumbull Ave., New Britain, engrs.

Mass., Braintree—Town, sewage system, Braintree, May 22, sanitary sewers, D.P.A. unemployed. J. Grigale, 347 Washington Ave., Hyde Park, $98,324. CD 5-23.

CONTRACTS AWARDED

Calif., Long Beach—Los Angeles County Sanitation Dist. 2, 1126 Maple Ave., Los Angeles, 20, 1 Units 2 to 4 Area, 15 mi. to rein. conc. pipe to P. S. 1, Alameda, 144th St. and Kenwood St., Los Angeles, $991,605. Est. $1,000,000. Bids 5/10, awarded 5/16. CD 5-18-44.

Mass., North Attleboro—Town, 10 Selectmen, Town Hall, Contr. 1, sewers, appurtenances, various streets, to D. Wason Pond, Mt. Hope St., Chestnut St., Gorchester, $50,000. Whitman & Howard, 89 Broad St., Boston, engrs. CD 5-26.

Tex., Houston—Thos. A. Robinson, City Natl. Bank Bldg., sanitary sewers, to Bids Dec. 29, 1010 Wisteria St., $53,615. E. G. Pearson, 1010 Wisteria St., engr. CD 5-26.

BRIDGES

BIDS ASKED

† Massachusetts—E.A. 6-22—U.S. Eng., Army Base, Boston, (as required). Widen River Bridge, Fort Devens, including approaches and wood decking, county.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Public Buildings
Sewers, Waste Disposal	Commercial Buildings
Bridges	Industrial Buildings
Streets & Roads	Unclassified
Earthwork, Waterways	

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new advance-work jobs). For full calendar, see also preceding issue of ENR.

LOW BIDDERS: On jobs below $100,000 value all low bidder news will be the first reports published on the projects involved except where award is not made to the low bidder. In such case a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidder previously reported in new bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
E.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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BRIDGES

BIDS ASKED

† Massachusetts—E.A. 6-22—U.S. Eng., Army Base, Boston, (as required). Widen River Bridge, Fort Devens, including approaches and wood decking, county.

New York—E.A. 6-13—Area Region, State Parkways, Bridges and Grade Crossing Elimination, Headquarters, Belmont, State Park, Bridges.

Suffolk Co.—Bridges, construction of prestressed concrete Parkway bridges over Nesconset Highway, Smithtown, at the foot of Nesconset Highway, Port Jefferson, prestressed concrete bridge across State Boat Channel at Captree Island, Fire Island Inlet, Babylon, & Homan Ave., Sea Cliff, concrete ramps, Contractors wishing to examine site of proposed work may obtain the services of a boat free of cost by getting in touch with owners. CD 9/26/44.

LOW BIDDERS

Kentucky—State Dist. Hwy. Engineer, May 26, overhead structure 0.014 mi. over C. & O. Ry. tracks Ashland-Grayson Rd. near Prospect, Proj. #1-0171.5 P. To Ind. Bldg. Co. from Allen County Co. Office Bldg., $108,125. Approaches and appurtenances will be bound together in one contract. Also, Proj. #1-0171.6 P. To Ind. Bldg. Co. from Allen County Co. Office Bldg., $13,507. Breathitt Co. and bridge over Troublesome Creek on Hazard-Jackson Rd. at Hardburg, 0.15 mi. Pineville-Jackson (Spur) Rd., Proj. C.P. 46-265 Pine Co. from Kentucky Const. Co., Bardstown, $53,799 and $63,686 respectively**** Lexington-Louisa Rd. at U.S. 60, Proj. BI 519 (3) P. To Ind. Bldg. Co. from Allen County Co. Office Bldg., Inc., Winchester, and Ft. Adams and Delaware Ave., Lexington, $122,687. Bridge approaches 0.42 mi. over North Fork of Ky. River, Whitesburg-Cumberland Rd., Proj. F 140 (8) S.P. 67-119, Letcher Co. from R. R. Dawson Bridge Co., Bloomfield, $140,460. CD 5-10.

▲ New Jersey—New Jersey Turnpike Auth., 65 Prospect St., Trenton, June 1, under 29, constr. 8 steel, concrete structures and alterations to 1 timber structure, over Newark Bay, etc., in Contr. 4, of Sect. 4, between Allentown and Raritan River, Mercer and Middlesex Counties, from Brockton Constr. Co., Inc., 521 5 Ave., New York, N. Y., $1,161,069. CD 5-16.

New York—Bureau Contracts & Accounts, Albany, June 1, 87 ft. span concrete slab frame and misc. work 0.61 mi. Southern State Parkway, 1st grade at Eastern St. Parkway, Contr. No. SSP 50-1, S-Hix Co., from Hempstead, Inc., 61 N. Central Ave., Valley Stream, $163,296. est. $200,000**** (on comp. Type 1, opt. 1) 0.7 mi. road through town of Islip at approach to Bridge P-115 over Long Island Expressway, Proj. 5200-11, Contr. No. EA 5-1, from Broome Co. Const. Co., Main St., Whitney Point, $146,770. est. $191,000**** (on comp. 0.67 mi. work, 0.07 mi. rein. conc. CC box, 1 span 23 ft. each Portville Village, SH 872 (Main St. Bridge over Bridge Creek), Contr. No. EC and 1 Span Bridge over Bridge Creek, Contr. No. EC, from Kinsley Const. Co., Inc., Kinsley, $63,485. est. $112,000**** (welled bids to have been opened June 1, under Highway Sec. 2 span alpha 1 beam 35 ft. ea. Sect. 3 span alpha 1 beam 35 ft. ea. Sect. 2 span alpha 1 beam 42 ft. ea. Sect. 2 span alpha 1 beam 42 ft. ea. Sect. 2 span alpha 1 beam 50 ft. each, Hy. Sec. and 6 existing 30 ft. bridge, 2 mi. on Bronx River Parkway, Iona Sect. Pts. 1 and 2, Contr. No. NRP 49-3, Westchester Co., from Lehigh Valley Const. Co., Inc., Yonkers, to be awarded June 1. CD 5-11.

Tex., Corpus Christi—Nueces Co. Courthouse, May 15, steel and concrete bridge across Inner and abutments, piers to be of reinforced concrete, Proj. A-1, Proposition Bldg., $61,225. Est. $100,000. J. Laurence Co. engr.

CONTRACTS AWARDED

Ind., Richmond—Bd. P. Wks., City Hall, reinforced concrete arch bridge over Sewage River, Proj. 1744 Kentucky Ave., Indianapolis, $99,000. Est. $1,199,000. Bids 5/24, awarded 5/26. CD 5-15.

▲ New Jersey—New Jersey Turnpike Auth., Trenton, Contr. 27, 15 steel concrete structures, resurfacing and incidental work in connection with construction of Bridge over Delaware River between Bordentown, N. J., and Burlington Township, Pa., from Contr. 2, Woodbury Heights to Hartford, Clearwater Construction Co., Inc., Burlington Township, Pa., Contr. 10, Village of East Hartford, Conn., $2,310,658. Bids 5/23, awarded 6/1. CD 5-26, under LB.

New Jersey and Pennsylvania—Delaware River Joint Toll Bridge Comm., 124 Front St., Bala Bldg., Trenton, N. J., constr. Easton approach to Bushkill-Lehigh Bridge between Easton, Pa. and Phillipsburg, N. J., Northampton and Warren Cos., N. J. to Independence Paving & Const. Co., 431 Main Ave., Passaic, $961,769. Bids 5/1, awarded 5/19. CD 4/7.

▲ New York—Bureau Contracts & Accounts, Albany, construction of 1st Lackawanna R.R. grade separation and relocation of Erie R.R. over the City of Corning, Steuben Co., to The Lane Construction Corp., 37 Church St., Meriden, Conn., $7,805,790. Bids 4/12. CD 4/14, under LB.

Virginia—State Hy. Dist. Engineer, underpass of the Norfolk & Western R.R. Route 170 at Montrose Ave. and 23 St., Norfolk City, to W. W. N. Jackson Co., P.O. 1, Roanoke, $567,625. CD 5-25, under LB.

Quebec ... $500,000

STREETS AND ROADS

BIDS ASKED

Minn., Benson ... $153,700

+ Ky., Louisville ...

Mo., Clayton (St. Louis S. P.O.) ...

+ S. C., Parris Island ...

S. C., Clinton ...

Minn., Center City ...

Calif., Atascadero ...

Minn., Faribault ...

Minn., Minneapolis ...

Minn., Chaska ...

Tex., Arlington ...

Tex., Houston ...

Tex., Houston ...

LOW BIDDERS

▲ California ... $1,962,724

... $55,555

Illinois ... $693,196

Kentucky ... $164,973

... $147,477

... $84,316 and $60,396

... $116,793

... $72,443

... $175,585

... $60,557

... $81,584

... $79,795

... $92,842

... $58,435

Maryland ... $877

... $164,855

Minnesota ... $131,945

... $108,426

... $64,958

... $696,137

▲ New York ...

... $735,530

... $745,779

... $570,166

... $92,440

N. D., Grand Forks ... $217,400

▲ Pennsylvania ...

... $3,010,870

... $1,083,989

Tex., Corpus Christi ... $53,400

... $136,161

CONTRACTS AWARDED

▲ Arkansas—State Hy. Dist., Little Rock, to Ben M. Hogan Co., 1120 Fairview St., Little Rock, road work, Gravel Pits ... $276,880; road work, Hot Springs, Gravel Co. ... $70,767; road work, Stuttgart, Arkansas Co. ... $542,515; road work, Hot Springs, Mountain Co. ... $355,040; ... to J. L. Burton County Co., 722 Wheeler St., ... $76,472; ... mi. road work, Hempstead County ... $306,479; ... R. ... $272,314; ... $204,343; ... Southeastern County Co., Inc., 12774 Main St., ... $203,488; ... Montgomery County, ... $200,736; ... $148,712; ... $121,867; ... A. ... $191,485; ... 12.6 m. road work, Magnolia, Columbia County ... $245,277; ... R. 2, Grand Isle ... $4,269,423; ... $ 23, ...

la., Fort Dodge ... $162,158

N. J., Ocean City ... $59,720; Water Rd. Improvement ...

▲ Pennsylvania ... $1,135,434; ... to be constructed with bituminous concrete base and ... pavement on ... Section ... Improvement with bituminous concrete ... pavement on ... Section ... Improvement with bituminous concrete ... pavement on ... Section ... Improvement with bituminous concrete

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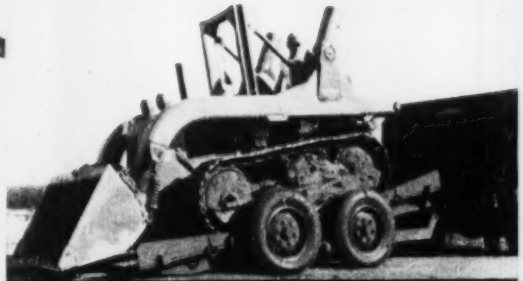

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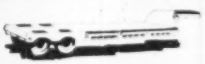

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Single Axle Trailers

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Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 50 Church St., N. Y.

AIRPORTS

BIDS ASKED

† Conn. Windsor Locks

† Fla. Tampa

† Mo. Annapolis

† Tex. Dallas

LOW BIDDERS

† Calif. Yuma

▲† Alaska Tanacross

CONTRACTS AWARDED

Ind. Evansville

LATIN AMERICA

El Salvador

PUBLIC BUILDINGS

BIDS ASKED

N. J. Atlantic City

† S. C. Greenville

Mass. Brockton

N. H. Concord

LOW BIDDERS

N. H. Concord

Va. Hampton

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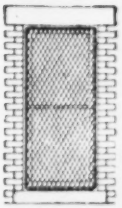
24 HOURS A DAY!

IT'S A STEWART FENCE

Notice the sturdy All-Beam framework . . . the extension arm and line post an integral unit. Stewart Non-Climbable Chain Link Wire Fence, the heaviest and strongest manufactured, features a number of exclusive structural advantages you can't afford to overlook. Write for folder "Here's why you should buy a Stewart Chain Link Wire Fence."



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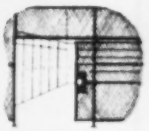
(Wire or Iron)

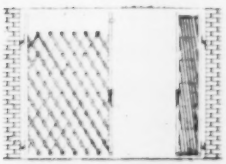
Made with round or channel frames to fit any size or shape opening. When requesting prices please give measurements and send diagrammatic sketch.

WIRE MESH PARTITIONS—Sectional

Fit any height or width. Easily and quickly erected. When writing for prices please give all measurements involved.



STEEL FOLDING GATES



Made in single or double gate construction to fit any width opening. Prices on request. Please give width and height of opening.

THE STEWART IRON WORKS CO., INC.
1767 Stewart Block Cincinnati 1, Ohio

Stewart IRON and WIRE FENCES

Newport News, $373,000. Stainback & Taylor, 403 E. Franklin St., Richmond, architects.

CONTRACTS AWARDED

†Idaho, Arco—BUILDINGS—Atomic Energy Comm., 1901 Constitution Ave. N. W., Wash., D. C.: 42x102 ft., 2x42 ft., 12x12 ft. masonry concrete buildings for reactor testing station in Twin Buttes Area, to P. S. J. Anderson, 12300 Wilshire Blvd., Los Angeles, Calif.; $65,491. Bids 5/25. CD 4-29.

COMMERCIAL BUILDINGS

BIDS ASKED

Del., Seaford—HOSPITAL—U. A. 6-22—Nuticare Memorial Hospital, Seaford, Hospital, $429,500. R. A. Chatfield, 423 W. Chester Ave., Phila., Pa., archt. CD 2-2.

▲Tex., Arlington—DWELLING—Bids Asked (Revised) Const. Inv., 2804 Race St., Fort Worth, Unit E, 200 dwellings, $1,500,000. CD 4-11. Unit F, 359 frame, masonry dwellings, concrete slab fdn., $3,250,000.

SOON LETS CONTRACT

Mo., St. Louis—ADMINISTRATION—American Bank, Inc., 721 Pine St., Zone 1, addition to store, bsmt., 1 to 4 sty., 114x114 ft., follow-the-steel, concrete construction bldg. between Bldgs. 1 and 2 adjacent to 4 and Pestalozzi Sts. Mathews, Voorhis & Cartier, 316 N. 8 St., Zone 1, architects. With C. Hexter Associates Bldg., 411 N. 7 St., Zone 1, structural engr. John D. Falvey, 316 N. 8 St., Zone 1, mech. engr.

O., Canton—STORE—Zeisinger & Ferrand, Realty Co., Box 418, soon lets contract (Gen. Contractor, Owner to be named later), 1 sty., 100x200 ft., to E. C. Ferry Est., Inc., 1 Wall St., New York, N. Y., owner.

Pa., Johnstown—DEPARTMENT STORE—W. T. Grant Co., 2401 Broadway, New York, N. Y., owner. Prelim. plans completed. Negotiations with Gen. Contractor pending. Mitchell & Ritter, Empire Bldg., Pittsburgh, archts.

Fla., Warrington—APARTMENT—Owner, Navy Area Housing Bldg., Pensacola, Fla., soon lets contract for 2 bldgs., 2 sty., 100x200 ft., to E. C. Ferry Est., Inc., 1 Wall St., New York, N. Y., owner.

LOW BIDDERS

▲Mo., Springfield—[illegible]

▲N. J., Providence—[illegible]

▲Vt., Burlington—[illegible]

CONTRACTS AWARDED

Calif., Bellflower—[illegible]

Ill., Park Ridge—[illegible]

▲La., New Orleans—[illegible]

Mass., Allendale—[illegible]

Mo., St. Louis—[illegible]

▲Mo., St. Louis—[illegible]

▲N. J., Elmsford—[illegible]

N. J., Moorestown—[illegible]

Pa., Phila.—[illegible]

N. J., Riverside—RESIDENTIAL DEVELOPMENT—Albert Steinberg, 1741 Bustleton Ave., Phila., Pa., architect-engineer, 7 and Delaware Aves., separate contracts, $250,000. Burns & Dearden, Cherry Hill, archts.

N. J., Sandestorn—RESIDENTIAL DEVELOPMENT—[illegible] $250,000

▲N. C., Charlotte—[illegible] $15,000,000-$20,000,000

▲O., Toledo—[illegible] $1,600,000

Pa., Conshohocken—[illegible] $250,000

Pa., Jenkintown—[illegible] $250,000

Pa., North Hills—RESIDENTIAL—Waters & Mackinnon, architect-engineers, Fifth Ave., Separate contracts, $250,000

Pa., Phila.—[illegible] $315,000

Pa., Phila.—[illegible] $250,000

Pa., Phila.—[illegible] $384,500

Pa., Phila.—[illegible] $500,000

Pa., Phila.—[illegible] $352,000

Pa., Phila.—[illegible] $250,000

Pa., Pottstown—[illegible] $250,000

Pa., Pottstown—[illegible] $250,000

Pa., Upper Darby—[illegible] $250,000

Tex., El Paso—[illegible] $250,000

Tex., Houston—[illegible] $750,000

Tex., Houston—[illegible] $775,000

Tex., Houston—[illegible] $700,000

Tex., San Antonio—[illegible] $275,000

INDUSTRIAL BUILDINGS

BIDS ASKED

Pa., Philadelphia—[illegible] $98,300

SOON LETS CONTRACT

Mass., Boston—[illegible]

LOW BIDDERS

Tex., San Antonio—[illegible]

CONTRACTS AWARDED

Mo., St. Louis—[illegible]

Pa., Phila.—[illegible] $70,000

Pa., Phila.—MANUFACTURING—Warehouse & Co., D and Luzerne Sts., 2 sty., 40x45 ft., brick bldg., to be erected to Wm. F. Lutz, 4702 Frankford Ave., $70,000.

Pa., Phila.—MANUFACTURING—Welded Tube Co. of America, Island Rd. and Fairhill Ave., Lester, 1 story, 100x150 ft. masonry addition to D. & S. Steel Co., 2711 Mixter St., $70,000. Louis Bair, 3 Penn Center, archt.

▲Pa., Pittsburgh—OPEN HEARTH FURNACE—Jones & Laughlin Steel Corp., 3 Gateway Center, Grant St. Transfer & Fifth Ave., including 11 basic open hearth furnaces, 410 tons each, 4 soaking pits, 410 tons each, 1 blooming mill, 40 in. diameter rolls, 1 billet mill, 28 in. diameter rolls, 1 bar mill, 18 in. diameter rolls, 1 rod mill, 10 in. diameter rolls, 1 merchant mill, 12 in. diameter rolls, 1 structural mill, 40 in. diameter rolls, 1 plate mill, 160 in. diameter rolls, 1 hot strip mill, 40 in. diameter rolls, 1 cold strip mill, 40 in. diameter rolls, 1 cold reduction mill, 40 in. diameter rolls, 1 temper mill, 40 in. diameter rolls, 1 tinning line, 1 galvanizing line, 1 electrolytic tinning line, 1 electrolytic galvanizing line, 1 electrolytic chromium plating line, 1 electrolytic coating line, 1 electrolytic cleaning line, 1 electrolytic pickling line, 1 electrolytic annealing

SEWERS, WASTE DISPOSAL

BRIDGES

STREETS AND ROADS

EARTHWORK, WATERWAYS

AIRPORTS

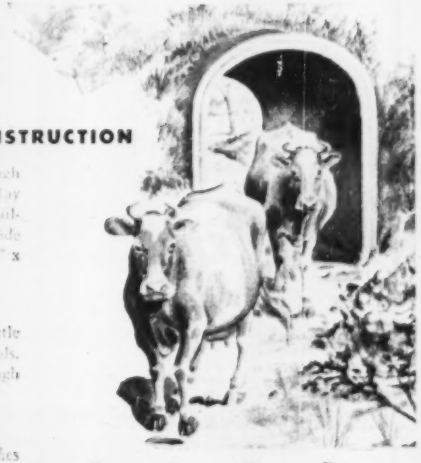
LATIN AMERICA

PUBLIC BUILDINGS

UNIVERSAL

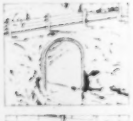
Flat-base pipe

FOR SAFETY, UTILITY, ECONOMY, SPEEDY CONSTRUCTION

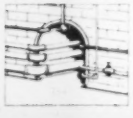


CATTLE PASS . . . special size flat base pipe is wide enough for cow with calf, narrow enough to prevent jamming. Lay under new fills or jack through old construction. Makes railroads, streets and highways safer, protects livestock. Inside measurements—48" x 72", other flat-base pipe sizes 6-40" x 46" to 97" x 97".

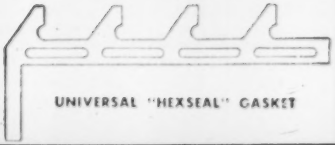
PEDESTRIAN UNDERPASS . . . very similar to the cattle pass in construction and use. Especially valuable near schools. Investigate the cost-slashing shortcuts available to you through use of Universal flat-base pipe for these and other uses.



CULVERTS . . . pre-cast, reinforced flat base pipe simplifies culvert construction, gives a sturdy, long lasting job.



UTILITY GALLERIES . . . large size flat-base pipe carries gas mains and electrical cable with ample room for workmen to make repairs and additional installations.



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COMMERCIAL BUILDINGS

Tex. Dallas—HOTEL—Southland Hotel, 102 Worthy St., [illegible] masonry hotel, [illegible] air-conditioning, $310,000.

▲ Tex. Fort Worth—APARTMENT HOTEL—E. E. Quin, 2243 Crockett St., plans by Charles E. Armstrong, 951 Majestic Bldg., 12 story, masonry, reinforced concrete, [illegible] Burnett St. between First and Second Sts., $2,000,000.

▲ Tex. Fort Worth—BANK—[illegible] Fort Worth National Bank, 724 Main St., 16 story bank and office, W. F. Lancaster, between Main and Houston Sts., $3,000,000.

Tex. Houston—DWELLINGS—Draper Construction Co., 7215 Kirby Dr., [illegible] one story, [illegible] garage, [illegible] brick veneer, $460,000.

Tex. Houston—DWELLINGS—[illegible] Co., 7215 Kirby Dr., [illegible] one story, [illegible] garage, [illegible] brick veneer, $400,000.

Tex. Houston—DWELLINGS—W. G. Robertson, 7215 Kirby Dr., [illegible] one story, [illegible] garage, [illegible] brick veneer, $525,000.

Tex. Houston—DWELLINGS—W. G. Robertson, 7215 Kirby Dr., plans by Kinsloe & Kinsloe, 2127 Allen Rd., [illegible] one story, [illegible] garage, [illegible] brick veneer, $420,000.

Tex. Wallace—CHURCH—Presbyterian Church Committee, [illegible] plans by Jim Bates, Structural Engineer, [illegible] one story, [illegible] brick veneer, $275,000.

Tex. Wichita Falls—HOTEL—Kemp Hotel Co., 1511 Majestic Bldg., Fort Worth, 6 story, 60 [illegible] 12 mezzanine floors, [illegible] shopping center, [illegible] club floor, $300,000.

Utah, Provo—STORE—Ralphs, [illegible] Angeles, [illegible] plans by Walter Wurdeman, Pereira, Bliss, Pereira & Ellis, [illegible] one story, [illegible] reinforced concrete, $500,000.

Wash., Seattle—CHURCH—First Baptist Church, [illegible] Ave. and Pine St., plans by W. R. Ellis, [illegible] Northwest Way building, [illegible] $300,000.

▲ Wash., Spokane—[illegible] Mission Plaza, Mission and [illegible] Sts., Spokane Tax Payers, Inc., [illegible] new city on north side, $2,500,000.

▲ Wis., Green Bay—[illegible] Peter A. Gust, [illegible] Corporation, Green Bay, plans by Eschweiler & Eschweiler, Columbus Bldg., [illegible] 203 ft. wide, 2 story, 44 x 203 ft. wings, 2 story, 44 x 128 ft. gymnasium and 3 story hotel, [illegible] 88 x 72 x 8 stories, [illegible] all reinforced steel, brick, limestone, $1,000,000.

▲ Wis., Milwaukee—HOSPITAL—St. Michael Hospital, [illegible] N. 9th St., Milwaukee, plans by Rapp, Rapp & Rapp, 1 W. Monroe St., Chicago, 3 story, 92 x 92 ft., [illegible] $3,000,000. Mark F. Phillips, 8125 Bavarian Ave., Wauwatosa, Zone 13, owner, owner.

Alaska, Anchorage—APARTMENT—W. K. Jamison, Anchorage, two story, 64 unit apartment, $800,000.

Alaska, Anchorage—CLUB—Young Men's Christian Association, Anchorage, plans by Mowry & Mayer, Lumber Exchange Bldg., club bldg., $300,000. CD 2-8.

INDUSTRIAL BUILDINGS

Ark., Berryville—PLANT—F. A. Tesque, Berryville, 3 story, 6275 ft. processing and storage plant, $450,000.

Idaho, Moscow—PLANT—Stone Clay Products, Inc., Moscow, plans by W. L. Pope, Lewiston, brick plant, $150,000.

Ill., Aurora—WAREHOUSE—[illegible] 1410 Harley Davidson Motor Co., [illegible] warehouse for Aurora Building Company, $125,000. A. D. Conti, [illegible] owner.

Ill., Chicago—FACTORY—Stewart Homemade Candies, [illegible] W. Montrose St., 1 story, 11 x 60 ft. factory, [illegible] 24 ft. retail store, $350,000.

▲ Ill., Melrose Park—FACTORY—Bakers, [illegible] Sedgwick St., [illegible] W. Madison St., [illegible] Zone 12, owner, [illegible] Inc., $2,000,000.

Md., Baltimore—GARAGE—Lottery Ave., [illegible] A. C. Dunn, [illegible] Co., 1 story, [illegible] $140,000.

▲ Mo., St. Louis—MANUFACTURING—Anheuser-Busch, [illegible] Ave. and [illegible] Ave., [illegible] $5,000,000.

N. Y., Glendale—FACTORY—Fabry, Pine [illegible] $400,000.

O., Mansfield—[illegible] Mansfield Memorial Museum, [illegible] $300,000.

▲ Pa., Pittsburgh—PLANT—Heinz Medical Research Laboratory, [illegible] Fifth Ave., [illegible] & Zoning, 175 [illegible] $1,500,000.

S. D., Yankton—GRAIN ELEVATOR—[illegible] $100,000.

Tex., Dallas—TRANSFORMER—[illegible] Power & Light Co., [illegible] $739,700.

Tex., El Paso—FOOD PLANT—Anglo Foods Co., [illegible] $100,000.

Tex., Odessa—PLANT—[illegible] $100,000.

▲ Utah, Salt Lake City—[illegible] $2,500,000.

Wash., Seattle—[illegible] $100,000.

Newfoundland, Fermeuse—PLANT—[illegible] $200,000.

Ont., North Bay—[illegible] $400,000.

Ont., Toronto—[illegible] $500,000.

Que., Arvida Vale—PLANT—[illegible] $150,000.

Que., Asbestos—PLANT—[illegible] $500,000.

Que., Montreal—[illegible] $350,000.

Que., Montreal—[illegible] $100,000.

UNCLASSIFIED

Alabama—RURAL DISTRIBUTION LINES—Tallapoosa County Electric Cooperative, Lafayette, [illegible] $540,000.

Calif., Los Angeles—[illegible] $363,645.

Colorado—RURAL DISTRIBUTION LINES—Empire Electric Association, [illegible] $452,000.

Florida—RURAL DISTRIBUTION LINES—Peace River Valley Electric Membership Corporation, [illegible] $310,000.

Georgia—RURAL DISTRIBUTION LINES—Middle Georgia Electric Membership Corporation, [illegible] $140,000.

Iowa—RURAL DISTRIBUTION LINES—Rural Electrification Administration, [illegible] $176,000.

Mass., Salem—THEATER—[illegible] Theater, 245 Essex St., [illegible] Boston, plans by Peter A. Sampson, [illegible] $250,000.

▲ Missouri—TRANSMISSION LINE—Missouri Public Service Co., [illegible] $2,500,000.

▲ Missouri—TRANSMISSION LINE—Missouri Public Service Co., [illegible] $2,000,000.

▲ New York and Ontario—[illegible] $6,000,000.

▲ North Dakota—[illegible] $1,370,000.

Oklahoma—[illegible] $220,000.

Oklahoma—[illegible] $170,000.

Tex., Houston—WAREHOUSE—[illegible] $200,000.

Tex., Houston—[illegible] $50,000.

Wash., Seattle—[illegible] $100,000.

▲ Manitoba—[illegible] $2,500,000.

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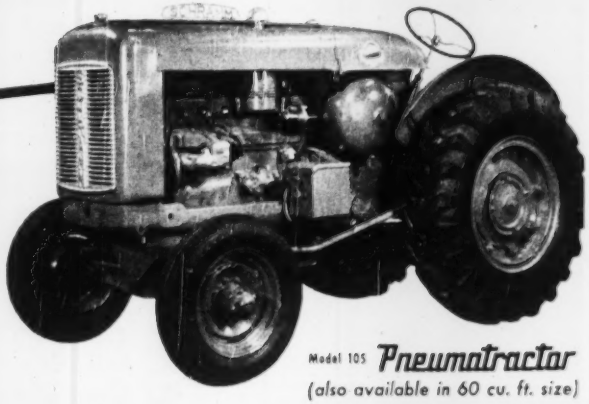

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The SCHRAMM *Pneumatractor* may very aptly be termed the "Newest of the New" —a self-propelled air compressor literally packed with far advanced features that put it in a class by itself. Its desirability over an old model air compressor can be likened to your preference for the modern automobile over the horse and buggy.

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Write today for Bulletin NEU-50B describing this most modern of air compressors and auxiliary equipment. In today's compressed air needs, you will find the *Pneumatractor* a "must".

SCHRAMM INC.

The Compressor People

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CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Kan., Topeka—B A, 6-23—City, City Hall, water plant and filtration plant: $1,000,000. Bids 6, council, Bonds. Engr, Black & Veatch, Kansas City, Mo.

N. C., Conway—B A, 6-23—Town, water sys, Sept. 1, 1950, $100,000. Bids 6, council, Bonds. Engr, Wilbur Smith & Associates, Columbia, S. C.

† S. C., Charleston—B A, 6-22—Dept. of U. S. Engineers, Fort Moultrie, Sullivans Island, Charleston County, Water system, Sept. 1950, $250,000. Bids 6, Bonds. Engr, Dist. Engr, Charleston, S. C.

† N. C., Camp Lejeune—B A, 6-23—Navy, Water Bureau, Washington, D. C., Water treatment plant, Marine Barracks, Camp Lejeune, Bids 6, Bonds. Engr, Bureau of Yards & Docks, Navy Dept., Washington, D. C.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. Y., New York—B A, 6-21—Department Public Works, Bureau of Sewers, Borough of Queens, Sewers in Lewis Avenue, Lewis Place, Lewis Court, Third Avenue, Avenue D, Bell Boulevard, Avenue A, Avenue B, Avenue C, Avenue D, Avenue E, Avenue F, Avenue G, Avenue H, Avenue I, Avenue J, Avenue K, Avenue L, Avenue M, Avenue N, Avenue O, Avenue P, Avenue Q, Avenue R, Avenue S, Avenue T, Avenue U, Avenue V, Avenue W, Avenue X, Avenue Y, Avenue Z

story; 32 x 65 ft. frame utility bldg., utilities, water, sewer and drainage, aprons and walks. Sunny Mountain Dam. Eng. 10-616.50-(68). CD 5-15.

▲† N. J., Fort Dix—QUARTERS—B.A. 6-22—U. S. Eng., 80 Lafayette St., New York 13, N. Y., converting bldgs. to provide family type quarters. Eng. No. 30-075.50-248. $1,300,000. Plans deposit $30. CD 4-26.

▲† N. J., Fort Dix—QUARTERS—B.A. 6-22—U. S. Eng., 80 Lafayette St., New York 13, N. Y., residential quarters for Junior and Non Commissioned Officers. $3,993,000.

† N. M., Albuquerque—LABORATORY—B.A. 4-22—U. S. Eng., Box 1538, 32,000 sq. ft. testing laboratory, TA-2. Serial No. 241-50-122. $475,000. Plans deposit $25. CD 5-23.

† N. M., Los Alamos—DORMITORY DAY ROOMS—B.A. 6-22—U. S. Atomic Energy Comm., Los Alamos, dormitory day rooms, alterations. Inv. No. 241-50-123. Approx. $200,000. Plans deposit $10.

† N. M., Los Alamos—STEAM PLANT—B.A. 6-22—U. S. Atomic Energy Comm., Los Alamos, steam plant, TA-9, TA-16. $1,000,000-$750,000. CD 5-1.

N. Y., Rhinebeck—SCHOOL—B.A. 6-27—Bd. Educ., Central School Dist. 2, Rhinebeck, Rhinebeck Central school. Plans deposit $15. Moore & Hutchins, 215 E. 37 St., New York, Zone 16, archts. CD 8-13-47.

N. D., Fargo—MOTOR SERVICE SHOP, etc.—B.A. 6-22—U. S. Property & Disbursing Office, Bismarck, motor service shop, squadron warehouse.

Pa., Doylestown—SCHOOL—B.A. 6-22—Pennsylvania Public School Bldg. Auth., 1905 N. Cameron St., Harrisburg, general, heating, plumbing, electrical work for elementary school for Warrington Twp. School Dist. Plans deposit $15. General $10, each others. Heacock & Platt, 15 N. 19 St., Philadelphia, archts. W. W. Reeves, c/o owner, in engr.

† Tenn., Knoxville—BUILDINGS—B.A. 6-22—At Office Capt. W. T. Eckberg, officer in charge of Construction, P.O. Box 145, Naval Base, Charleston 3, S. C.—Alterations, modifications, buildings at Naval and Marine Reserve Training Center to provide addl. classrooms. N.O.I. 21410. Ser. 24472.

N. B., Chatham—SCHOOL—B.A. 6-22—R. J. Morgan, engr., Central Mortgage & Housing Corp., 1542 Regent St., Fredericton, N. B., elementary school at R.C.A.F. Station, Chatham. 1-R.C.A.F. Station, Chatham School. Approx. $275,000. Plans deposit $50.

† N. M., Albuquerque—LABORATORY—B.A. Addn. 6-23—U. S. Eng., Box 1538, testing laboratory, TA-2, Sandia Base. Serial No. 241-50-122. Plans deposit $15.

† N. C., Asheville—ARMORY—B.A. Addn. 6-23—U. S. Eng., Post Office Bldg., Savannah, Ga., 2 story, approx. 29,000 sq. ft. ORC armory. Louisiana Ave. interstate, south of Mill Creek. Plans deposit $27.

† Tex., El Paso—BUILDINGS—B.A. addn. 6-23—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., addns. and alterations to Bldgs. 1 and 2 and Wing A of Main Bldg. and shoring and underpinning of Wing A of Main Bldg., Beaumont Hospital, Fort Bliss. Eng. 24-005.50-64.

Calif., Anderson—SCHOOL—B.A. 6-23—Anderson Union High School Dist., Anderson, 1 story, approx. 10 classroom high school addn. Approx. $250,000. Plans deposit $25. Masten & Hurd, 626 Powell St., San Francisco, archts. CD 1-13-49.

Calif., Coalinga—SCHOOL—B.A. 6-23—Coalinga Union High School Dist., Coalinga, reinforced, Coalinga Union High school addn. $324,000. Plans deposit $25. Kemp & Faick, 9 Main St., San Francisco, archts. CD 1-13-49.

† Fla., Tampa—TRAINING CENTER—B.A. 6-23—U. S. Navy, Bureau of Yards & Docks, Washington 25, D. C., Naval Reserve Training Center, Tampa. Eng. 6-(5)-Misc. 21405. Spec. 24402. Plans deposit $15.

Ga., Clayton—HOSPITAL—B.A. 6-23—Rabun Co. Hospital, Plans deposit $50. League Warren & Rhyne, 470 Mulberry St., Macon, archts.

La., Shreveport—HOSPITAL—B.A. 6-23—Trans. Co., hospital. Plans deposit $50. League Warren & Rhyne, 470 Mulberry St., Macon, archts.

† N. M., Los Alamos—[illegible]—B.A. 6-23—U. S. Atomic Energy Comm., Los Alamos, [illegible], TA-[illegible]. Inv. No. 241-50-122. $450,000. Sandia Base. Plans deposit $25.

O., Berea—[illegible]—B.A. 6-23—[illegible], Berea, [illegible], Elementary & Junior High School addn. [illegible]. Plans deposit $10.

† Tex., Austin—ARMORY—B.A. 6-23—U. S. Eng., 819 Santa Fe Bldg., Galveston, 2 story, 102x102 ft. reinforced brick armory, steel roof trusses. Eng. 41-2143.50-27. $[illegible]. Plans deposit $15.

† Tex., El Paso—ARMORY—B.A. 6-23—U. S. Eng., P.O. Box 1538, Albuquerque, N. M., ORC armory. Eng. 24-005.50-64. $[illegible]. CD 5-16.

▲ Va., Roanoke—DISPENSARY—B.A. 6-23—At Office of Chief of Naval Personnel, Washington 25, D. C.—Alterations and addns. to Catawba Sanatorium, $2,000,000. Plans deposit $5. Wm. B. Meyer, Baskervill & Lambert, Allied Arts Bldg., Richmond, archts. W. Campbell Ave., archts., Roanoke.

Ont., Englehart—SCHOOL—B.A. 6-23—Finlay & Algona Secs. #8 Bethany Rd., Toronto, high school addn. Approx. $250,000. Plans deposit $20.

† N. C., Asheville—ARMORY—B.A. 6-23—U. S. Eng., Post Office Bldg., Savannah, Ga., 2 story, approx. 29,000 sq. ft. ORC armory. Louisiana Ave. interstate, south of Mill Creek. Plans deposit $27. Concrete floor, brick fill, grading, all completed in basement and parking area. Plans deposit $25. CD 5-2.

† R. I., Providence—ARMORY—etc.—B.A. 6-23—U. S. Eng. Army Base, Boston, Mass. Properties Reserve Corps, Armory and vehicle storage bldg., [illegible] 14-016.50-36. Approx. $250,000. Plans deposit $15. CD 5-9.

† N. M., Albuquerque—ORDNANCE OFFICE—B.A. Addn. 6-26—U. S. Eng., Box 1538, ordnance office bldg. (110-50-2), Sandia Base, Serial No. Eng. 29.005-50-56. CD 5-23. under LB.

† Tex., El Paso—BUILDING ALTERATIONS—B.A. Addn. 6-26—U.S. Eng., Box 1538, Albuquerque, N. M., Bldg. 422 addns., alterations, Fort Bliss, Serial No. Eng. 24-005.50-64.

Ala., Tuscaloosa—WOMEN'S PATIENT—B.A. 6-26—Alabama State Hospitals, c/o Dr. J. S. Tarwater, Bryce Hospital, Tuscaloosa, three wing 2 story women's patient bldgs. at Bryce Hospital. Plans deposit $25.

▲ Ark., El Dorado—NURSES HOME, etc.—B.A. 6-26—Warner Brown Hospital, El Dorado, 2 story nurses homes & story brick, concrete, steel hospital addns., remodeling, altering. Approx. $2,000,000. Extended date May 15 & June 1. Clark, 4908 Dehar Blvd., Memphis, archts. CD 5-10.

† N. M., Los Alamos—COMMUNICATIONS—B.A. 6-26—U. S. Atomic Energy Comm., Los Alamos, communications bldg. TA-[illegible]. Inv. No. 241-50-90. $150,000-$175,000. Plans deposit $25. CD 5-8.

Tex., Sweetwater—SCHOOL—B.A. 6-26—Sweetwater Independent School Dist., Sweetwater, Reagan-Lewis School remodeling. $375,000. Plans deposit $20. W. R. Griffin, 207 Leggett Bldg., archt. CD 5-23.

Newfoundland, St. Johns—HOSPITAL WINGS—B.A. 6-26—R. Manning, Deputy minister, Dept. P. Wks., St. John's, two wings at hospital for Mental and Nervous Diseases, Waterford Bridge Rd. Approx. $500,000. Plans deposit $50.

Calif., Albany—SCHOOL—B.A. 6-27—Albany Unified School Dist., 1304 Santa Fe Ave., 1 and 2 story, reinforced concrete, Spanish. Approx. $250,000. Young & Hart, 1[illegible] Ave., archts.

† Calif., Los Angeles—TELEPHONE EXCHANGE—B.A. 6-27—Veterans Administration, Vermont Ave. between 5th St. & W. Adams Blvd., Telephone Exchange Bldg. & Administration Center. Spec. No. [illegible]-4201.

▲ Calif., Oxnard—SCHOOL—B.A. 6-27—Oxnard Union High School Dist., Oxnard, Oxnard High School addn., classrooms, shops, & classrooms. $1,300,000. Harold E. Burket, 740 E. Main St., Ventura, archt. Wm. J. Wheeler, 2943 W. 7 St., Los Angeles, engrs. CD 8-8-49.

▲ Calif., San Francisco—HOUSING—B.A. 6-27—Housing Auth. of City and County of San Francisco, 449 Turk St., 2 story, 154 housing units, three 6 story elevator type structures, 214 unit buildings. $2,200,000. Plans deposit $100. Henry F. Hohbach, Davies, Jones, Franklin & Ward & John S. Bolles, 215 Leidesdorff St., archts. CD 7-19-49.

Tex., West Columbia—SCHOOL—B.A. 6-27—West Columbia Independent School Dist., West Columbia, school, $300,000. Donald Barthelome & Assoc., 3106 Brazos St., Houston, archts. CD 12-28-49.

† Fla., Cocoa—BUILDING—B.A. 6-27—U.S. Eng., 575 Riverside Ave., Jacksonville, Zone 1, modification, concrete & bldgs. at Naval Base of Joint Long Range Proving Grounds, near here. Inv. Serial No. [illegible]. 17-50-7. CD 6-29-49.

† Fla., Miami—ARMORY—B.A. 6-27—U. S. Eng., Post Office Bldg., Savannah, Ga., 2 story, 27,000 sq. ft. ORC armory, Stanford Drive, R. R. Armory, on campus of University of Miami. Plans deposit $20. Extended date. CD 5-23.

La., Houma—SCHOOL ADDN.—B.A. 6-27—Terrebonne Parish School Bd., Houma, 2 story brick, fire steel school addn., alterations, incl. renovation, repairing 2 schools, Nathan Nicholas & Nathan Scott, Houma. Civilian Bldg., New Orleans, archts. CD 5-24.

La., Scotlandville—SCHOOL—B.A. 6-27—East Baton Rouge Parish School Bd., City Hall, Baton Rouge, 2 story, 14 classroom, Scotlandville High School addn., Scotlandville, East Baton Rouge Parish, [illegible]. Plans deposit $25.

† Tex., Fort Hood—APARTMENTS—B.A. 6-23—Fort Hood, Dist. of Area Engineer, [illegible] Fort Hood, rehabilitation of 174 [illegible] Apartments, [illegible] Fort Hood, [illegible]. Plans deposit $[illegible]. CD 6-26-49.

LOW BIDDERS

▲ Calif., San Rafael—HOSPITAL—Marin County Hospital Dist., [illegible] Hospital, [illegible] Hospital, [illegible] Hospital,

INDUSTRIAL BUILDINGS

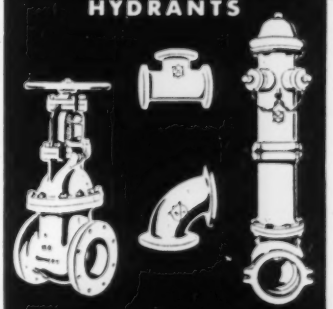
BIDS ASKED

UNCLASSIFIED

BIDS ASKED

SPECIFY KENNEDY

FOR DEPENDABILITY
IN VALVES • FITTINGS
HYDRANTS



THE KENNEDY VALVE MFG. CO.
1066 EAST WATER ST.
ELMIRA, NEW YORK

OFFICIAL PROPOSALS

Bids: June 22, 1950 (822)

George Washington Bridge

THE PORT OF NEW YORK AUTHORITY
CONSTRUCTION FROM GEORGE WASHINGTON BRIDGE TO HENRY HUDSON PARKWAY, STAGE 1
BORINGS
CONTRACT GWB-13

Sealed proposals for making borings for the Construction from the George Washington Bridge to the Henry Hudson Parkway, Stage 1, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1101, 111 8th Ave., New York, N.Y., until 11:00 A.M. Thursday, June 22, 1950, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer, and copies will be furnished upon deposit of $10 per set. The deposit will be refunded if the documents are returned in good condition not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, June 15, 1950

Bids: June 23, 1950 (821)

New Jersey Turnpike Authority

* * *

Sealed Proposals will be received by the New Jersey Turnpike Authority for the following contracts:

CONTRACT NO. 31

The work to be performed under this Contract involves construction of Part A of the substructures of fourteen (14) bridges and an abutment of a viaduct and Part B—demolition of buildings, garages and sheds, furnishing, placing and compacting various graded borrow excavation materials in embankment, relocation of sewers and watermains, construction of storm drainage, paving of roadway locations, and other incidental work in connection with the construction of the New Jersey Turnpike from Third Avenue to Port Avenue in the City of Elizabeth, Union County, New Jersey.

Principal items of work include:

BRIDGE ITEMS—PART A

Open Foundation Excavation	18,500 Cu. Yds.
Furnishing and Driving Steel Bearing Piles or Cast-in-Place Concrete Bearing Piles	57,000 Lin. Ft. 51,500 Lin. Ft.
Concrete in Pile Caps, Footings, Bents, Abutments, Wing Walls	16,530 Cu. Yds.
Reinforcement Steel	1,750,000 Lbs.
Storm Drains (Various Sizes)	3,700 Lin. Ft.

GRADING AND DRAINAGE ITEMS—PART B

Roadway Excavation, Earth	2,000 Cu. Yds.
Borrow Excavation	280,000 Cu. Yds.
Topsoiling	50,000 Sq. Yds.
Storm Drains and Sewers (Various Sizes)	17,000 Lin. Ft.
Water Mains (Various Sizes)	1,500 Lin. Ft.
Manholes	80 Each
Inlets	51 Each
Concrete Cribbing	8,500 Cu. Yd.
Demolition of Buildings	Lump Sum

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, until 10:30 o'clock D.S.T. on the morning of June 23, 1950, and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. D.S.T. on the same date at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours after June 12, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey and at the office of the Engineers, Howard, Needles, Tammen & Bergendoff, 120 Wall Street, New York 5, N.Y., Frederic R. Harris, Inc., and O. H. Porter & Company, Associated, 2 William Street, Newark, New Jersey and Ammann and Whitney, 18 Raymond Boulevard, Newark, New Jersey or 76 Ninth Avenue, New York 11, New York.

Contract documents comprising Parts A and B of Contract No. 31 will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and Contract documents are not required to be returned. Plans showing grading for Contract No. 31 may be examined at the office of the Authority or at the office of the Engineer.

* * *

CONTRACT NO. 37

The work to be done under this Contract includes the construction of 11 steel and reinforced concrete bridges, together with incidental grading, drainage and paving in connection with the construction of the New Jersey Turnpike, Section 3, between Moorestown and Allentown, in Burlington and Mercer Counties, New Jersey.

Principal Items of Work for Contract No. 37 include:

Roadway Excavation, Earth	206,220 Cu. Yds.
Borrow Excavation	77,870 Cu. Yds.
Open Foundation Excavation (Wet and Dry)	15,204 Cu. Yds.
Topsoiling	56,250 Sq. Yds.
Untreated Timber Bearing Piles	11,774 L. F.
Cast-in-Place Concrete Piles	44,153 L. F.
Concrete, various items	19,991 Cu. Yds.
Reinforcement Steel	1,803,110 Lbs.
Structural Steel	3,961,500 Lbs.
Storm Drain, various types and sizes	1,606 L. F.
Guard Rail	1,170 L. F.
Macadam Base Course, 5"	8,750 Sq. Yds.
3" Modified Penetration Macadam	8,750 Sq. Yds.
1" Intermediate Course	8,750 Sq. Yds.
2" Bituminous Concrete Surface Course, Hot Mixed, Type FA-BC-1	8,870 Sq. Yds.
6" Gravel Surface Course	10,220 Sq. Yds.
Bituminous Surface Treatment	7,380 Sq. Yds.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of June 29, 1950, and thereafter in the Veterans' Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A.M. on the same date at which latter time and place said proposals will be opened and read. Both time shown are D.S.T.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after June 12, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Engineers, Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, New York.

Contract Documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded, and Contract Documents are not required to be returned.

* * *

CONTRACT NO. 58

The work to be performed under this Contract involves Grading and Topsoiling and incidental work in connection therewith in connection with the New Jersey Turnpike, Section 3, between Sta. 643 and Sta. 674, north of the Rahway River, in the City of Linden. Completion date is October 30, 1950.

Principal items of work include:

Roadway Excavation, Muck	25,500 Cubic Yards
Borrow Excavation and Embankment	260,500 Cubic Yards
Channel Excavation	2,500 Cubic Yards
Topsoiling, 4" and 8"	45,500 Square Yards

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, until 10:30 o'clock on the morning of June 29, 1950, and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. D.S.T. on the same date at which latter time and place said proposals will be publicly opened and read. Eastern Daylight Time applies.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after June 12, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, and at the offices of the Engineers, Fay, Spofford & Thorndike, 33 Beacon Street, Boston, Massachusetts, and 27 Livingston Avenue, New Brunswick, New Jersey.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and Contract documents are not required to be returned.

* * *

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plant and equipment.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five per cent of the amount of the proposal, but for not less than $5,000.00 nor more than $200,000.00 and must be delivered with proposal or before the hour named. Copies of the proposal form to be used in submitting proposals, of the form for proposal bond, the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract documents.

Contracts will be awarded or proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

June 9, 1950

Bids: June 29, 1950 (831)

Construction of Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for

BRIDGES, PALISADES INTERSTATE PARKWAY

Construction of four bridges on Palisades Interstate Parkway, Sections 1A and 2D, in the Borough of Tenafly, Bergen County. The principal items of construction are:

Estimated

8,150 sq. ft. Rough Stone Masonry	
195 cu. yds. Dimension Masonry	
2,285 cu. yds. Concrete in Structures	
105,500 lbs. Reinforcement Steel in Structures	

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, June 29, 1950, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualifications of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N.J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Graves, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N.J. Bids must be made upon the standard proposal forms in the manner designated in the Standard State Highway Specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the certified check shall be for not less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelope will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

(Continued on page 97)

OFFICIAL PROPOSALS
(Continued from page 96)

Bids July 14, 1950 (S29)

Superstructure

Sealed proposals will be publicly opened and read by the Jones Beach State Parkway Authority at Administration Headquarters, Belmont Lake State Park, Babylon, New York on Friday, July 14, 1950 at 11 A.M. (D.S.T.) for furnishing the necessary labor, material and equipment for and incidental to Contract 2, Superstructure at Marine Stadium located at Jones Beach State Parkway, near Wantagh, Nassau County, New York, as shown on the Plans and in accordance with the Contract Special Additions and Specifications and as directed by the Engineer.

There will be five separate contracts consisting of:

General Construction
Heating
Sanitary
Plumbing
Electric Elevators

Final award will be made on the basis of the lowest lump sum bid received for each contract.

Proposal forms, specifications and plans may be obtained at the office of the Jones Beach State Parkway Authority, Belmont Lake State Park, Babylon, New York or at the office of Skidmore, Owings & Merrill, Consulting Architects & Engineers, 580 Fifth Street, New York 22, New York. A certified check in exact accordance with the schedule given in the specifications must accompany each bid.

A bid for each of the Special Specifications will be required as follows:

General Construction $ ....
Heating ....
Sanitary ....
Plumbing ....
Electric Elevators ....

Award will be made on the basis of the lowest bid.

The Jones Beach State Parkway Authority reserves the right to reject any or all bids.

Bids: June 28, 1950 (S18)

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner at

ROUTE 25, SECTION 1C, YARDVILLE RELOCATION

Construction of bridge carrying Yardville-Bordentown Road over Assiscunk Creek, Hamilton Township, Bridge No. and Mercer County, Federal Project [illegible], Length 1.22 Miles

Roadway Items
Estimated
240 Cu. Yds. Roadway Excavation—
[illegible]
2200 sq. ft. Wet Excavation
Estimated
[illegible]
2 Mac Bar Guide Rail, Type MA-[illegible]
Bridge Items
[illegible] Structure
[illegible] Reinforcement Steel in Structure
[illegible]
2,253 sq. ft. Cast Stone Facing
2,200 lbs. Treated Timber Piles

Bid for the above will be received at the office of the State Highway Department, Room 30, Municipal Building, Trenton, New Jersey, until 10:00 A.M. EASTERN STANDARD TIME, except when DAYLIGHT SAVING TIME is in effect, when it will be opened and read immediately thereafter.

The receipt and opening of bids is subject to prequalification of the bidder in accordance with the Rules and Regulations governing prequalification of bidders. Bidders must submit a current financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a Federal Aid Project authorized by the Act of Congress approved July 11, 1916, as amended by the Act of Congress approved June 16, 1933, and is to be performed in accordance with the applicable provisions of the Rules and Regulations of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 176 West Main St., Somerville, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $ [illegible] per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, State House Annex, Trenton, N. J. Bid must be made upon the standard proposal form in the manner described in the Standard State Highway Specifications and must be executed in the special addressed envelope bearing the name and address of the bidder and work bid upon. No bid will be considered unless accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten per cent (10%) of the amount of the bid, provided that the said certified check shall not be less than $ [illegible] nor more than $ [illegible] and is to be delivered at the above place and before the hour and date named. Copies of the standard proposal form and special addressed envelope will be furnished upon application. Bid not enclosed in sealed special addressed envelope will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed Spencer Miller, Jr.
State Highway Commissioner

Date: July 6 and July 7, 1950 (S15)

Sewage Disposal System and Sewer Improvements

City of Tampa, Florida

Proposals are invited by the City of Tampa, Florida for construction of portions of the sewage disposal system and sewer improvements and will be received by the Director of Utilities and Board of Public Works, City Hall, Tampa, Florida and at the Interceptor, Sewer and Force Main, 220 Scott Street, Tampa, Florida, until 2:30 P.M. (EST) July 11, 1950 and then publicly opened and read.

Work and contract documents for the construction of the Interceptor Sewer and Force Main will be on file at the office of the Superintendent of Utilities, City Hall, Tampa, Florida and at the office of Hazen and Sawyer, Engineers, 220 Scott Street, Tampa, Florida. A deposit of $ [illegible] required for each contract document for each of the above sections.

[illegible]
City of Tampa, Florida
[illegible]
Director of Utilities
Board of Public Works

Dated June 6, 1950 (S15)

Date: July 11, 1950 (S15)

Road Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner at

AMWELL ROAD

[illegible] Amwell Rd. at Scudders Mill and at Woods Tavern, Hillsborough Township, Somerset County, Federal Aid Secondary Project No. [illegible], Section [illegible]

Estimated

[illegible] Cu. Yds. Excavation, Type A
[illegible] Cu. Yds. Excavation, Type B
[illegible] Cu. Yds. Excavation, Type C
[illegible] Cu. Yds. Macadam Foundation
[illegible] Cu. Yds. Mac. Pen. Macadam
[illegible] Cu. Yds. Mac. Pen. Macadam
[illegible] Cu. Yds. Mac. Pen. Macadam, Type A
[illegible] Cu. Yds. Mac. Pen. Macadam, Type B
[illegible] Cu. Yds. Mac. Pen. Macadam, Type C
[illegible] Tons Bituminous Concrete
[illegible] Tons Bituminous Concrete
[illegible] Tons Bituminous Concrete

OFFICIAL PROPOSALS
(Continued from page 97)

Bids: June 26, 1950 (814)

Parkway Grading

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

PALISADES INTERSTATE PARKWAY, SECTIONS 2D & 3B

Grading of Palisades Interstate Parkway, New Jersey, Sections 2D & 3B, from Station 166+50 to Station 214+50, North of Clinton Avenue, Boroughs of Englewood Cliffs and Tenafly, Bergen County. Length 0.915 miles.

Estimated:
26,700 cu. yds. Roadway Excavation—Earth
22,700 cu. yds. Roadway Excavation—Rock
2,500 cu. yds. Wet Excavation
30,000 cu. yds. Borrow Excavation

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Monday, June 26, 1950, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: June 26, 1950 (815)

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 26 EXT., SECTION 2-C
Construction of Route 26 Extension, Section 2-C, from Pennsylvania Railroad (Delaware Division) to Perry Street, Canal Culvert, Grading and Drainage, City of Trenton, Mercer County. Federal Project No. I-I-(005)3. Length 1.246 miles.

Alternative "A"—Pipe Arch Culvert
Estimated:
Roadway
16,200 cu. yds. Roadway Excavation—Earth
42,000 cu. yds. Wet Excavation
225,000 cu. yds. Borrow Excavation
Bridge
2,675 cu. yds. Class "B" Conc. in Structure
217,228 lbs. Reinforcement Steel in Structure
Culvert
373 lin. ft. Double Box Culvert
11,190 lin. ft. Culvert Pipe
Alternative "B"—Concrete Box Culvert
Roadway
16,200 cu. yds. Roadway Excavation—Earth
42,000 cu. yds. Wet Excavation
225,000 cu. yds. Borrow Excavation
Bridge
2,675 cu. yds. Class "B" Conc. in Structure
217,228 lbs. Reinforcement Steel in Structure
Culvert
373 lin. ft. Double Box Culvert
(NOTE: Bidder may submit bids on either Alternate "A" or Alternate "B")

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Monday, June 26, 1950, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23, Revised Statutes of New Jersey, and supplements; and by Section 1, Public Laws 836, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: June 26, 1950 (817)

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 26 EXT., SECTION 2-A
Construction of Route 26 Extension, Section 2-A, from Pennsylvania Railroad (Delaware Division) to Perry Street, Canal Culvert, Grading and Drainage, City of Trenton, Mercer County. Federal Project No. I-I-(005)3. Length 1.246 miles.

Alternative "A"—Pipe Arch Culvert
Estimated:
Roadway
16,200 cu. yds. Roadway Excavation—Earth
42,000 cu. yds. Wet Excavation
225,000 cu. yds. Borrow Excavation
Bridge
2,675 cu. yds. Class "B" Conc. in Structure
217,228 lbs. Reinforcement Steel in Structure
Culvert
373 lin. ft. Double Box Culvert
11,190 lin. ft. Culvert Pipe
Alternative "B"—Concrete Box Culvert
Roadway
16,200 cu. yds. Roadway Excavation—Earth
42,000 cu. yds. Wet Excavation
225,000 cu. yds. Borrow Excavation
Bridge
2,675 cu. yds. Class "B" Conc. in Structure
217,228 lbs. Reinforcement Steel in Structure
Culvert
373 lin. ft. Double Box Culvert
(NOTE: Bidder may submit bids on either Alternate "A" or Alternate "B")

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Monday, June 26, 1950, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 836, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: July 13, 1950 (793)

Senior High School and Recreational Facilities

TOWN OF EAST PROVIDENCE,
RHODE ISLAND

Sealed bids for the construction of the 1,500 pupil SENIOR HIGH SCHOOL AND RECREATIONAL FACILITIES IN THE TOWN OF EAST PROVIDENCE, RHODE ISLAND will be received at the office of the Superintendent of Schools, Joe Grove Avenue, East Providence, Rhode Island until 7:45 o'clock P.M. (EDST), on July 13, 1950, and will be publicly opened and read by the Chairman of the School Committee at 7:45 o'clock P.M. (EDST) in the Library of the present Senior High School, Taunton Avenue, East Providence, Rhode Island.

The project consists in general of a fire proof high school building of approximately 70,000 sq. ft. and additions, cafeteria, gymnasium, swimming pool and the development of about 20 acres for outside recreational and athletic facilities.

The contract documents, including plans and specifications, may be examined on and after June 15, 1950 at the office of the Engineers, Charles A. Maguire & Associates, 260 Turks Head Building, Providence, Rhode Island, and copies may be obtained upon deposit of $25.00 for each set taken. The amount of the deposit will be refunded to each person who returns the plans and documents in good condition within fifteen days after the opening of bids; otherwise said deposit will be forfeited.

Bid security in the sum of 5% of the bid shall be submitted with each bid, subject to the conditions set forth in the Instruction to Bidders.

No bid may be withdrawn for a period of thirty (30) days subsequent to the opening of bids.

The School Committee of the Town of East Providence, Rhode Island, reserves the right to waive any informalities or to reject any or all bids.

EAST PROVIDENCE SCHOOL COMMITTEE
Francis J. Fay
Chairman

(Continued on page 99)

OFFICIAL PROPOSALS
(Continued from page 98)

Bids: June 14, 1950 (797)

Trunk Line Sewers

BETHLEHEM, PA.

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa., for the construction of Trunk Line Sewer Sections 1, 2, 3, 4 and 5, will be received at the office of the Bethlehem Authority, 528 N. New St., Bethlehem, Pa., until 1:00 P.M. Eastern Standard Time, on the 14th day of July, 1950 at which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 528 N. New St., Bethlehem, Pa., for use in making up a bid by depositing $15.00 which amount will be refunded if a bid is submitted and the plans are returned in good condition. In case no bid is submitted, $10.00 will be refunded, if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to award a separate contract on each Section, to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a Certified check, Bank Treasurer's check, or Cashier's check, in an amount equal at least to five (5) percent of the total of the bid submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to one hundred percent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 percent of the total of the bid submitted.

Approximate Quantities

12,200 lin. ft. 8" to 15" sewer
11,500 linear feet 18" to 42" sewer
3 Inverted Siphons
4 Railroad Tunnels and appurtenances

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. B. Cook, Chairman
Robert L. Fox
Executive Director

Bids: June 27, 1950 (795)

Alterations & Additions to Schools

THE BOARD OF EDUCATION OF
CENTRAL SCHOOL DISTRICT NO. 1
TOWNS OF THOMPSON AND FOLLETT
SULLIVAN COUNTY, NEW YORK
(OWNER)

Separate sealed bids for General Contracting Work, Heating and Ventilating Work, Plumbing Work, and Electrical Work for the Alterations, Additions and Improvements to Central School, Narrowsburg, New York will be received by the Board of Education of Central School District No. 1, Towns of Thompson and Fremont, Sullivan County, New York at the office of the Board of Education in the Nelson Building, Narrowsburg, New York until 8:00 P.M. Eastern Daylight Saving Time, June 22, 1950, and then at said place publicly opened and read aloud.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Form of Bid Bond and Performance Bond may be obtained at the office of the Board of Education, at the office of the Architect, at the office of H. P. Fullerton Architect, 12 Washington Ave., Albany, N. Y., and copies thereof obtained at said Architect's office upon payment of $20.00 for each set. Any bidder, upon returning same in good condition and in time for use by other bidders, will be refunded $15.00. The Board of Education reserves the right to waive any informality in or to reject any or all bids.

Each bidder must deposit with his bid security in the form and amount required by the Information for Bidders.

Attention of bidders is particularly called to the requirements as to minimum wage rates to be paid under the contract, and to the bidder's duty to submit with his bid a financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 25 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 934, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Fulton & Paterson Streets, Paterson, N. J., and/or 600 Bloomfield Avenue, Bloomfield, N. J. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, entitled and dated as above, are on file and may be inspected in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard specifications and must be enclosed in sealed envelopes addressed to the State Highway Department, at the address given in the above paragraph, bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be for less than $200.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

U. S. Government

Bids: June 27, 1950

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Modification of the Lac qui Parle Flood Control Project Minnesota River, near Montevideo, Minnesota, will be received in the office of the undersigned until 11:00 A.M., C.S.T., June 27, 1950 and then publicly opened. Further information upon application. (823)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Mustinka River, Minnesota, near Wheaton, Minnesota, will be received in the office until 11:00 A.M., C.S.T., June 27, 1950 and then publicly opened. Further information upon application. (824)

UNITED STATES DEPARTMENT OF THE INTERIOR Bureau of Reclamation, Sealed bid, Specification No. 7650, will be received by Bureau of Reclamation, Phoenix, Arizona, June 28, 1950, and then publicly opened for furnishing, labor and materials and performing all work for the construction of three 21 kilovolt transmission lines and substations for the Wellton-Mohawk Drainage Pumping Plants No. 1 and No. 2, Gila Project, Arizona. The work is situated near Yuma, Arizona. The lines are wood pole and will consist of approximately 30 miles of single circuit, 3 phase line from the Gila substation to the Wellton-Mohawk switchyard and approximately 30 miles of single circuit, 3 phase line from the Wellton-Mohawk switchyard to Pumping Plants No. 1 and No. 2. Time allowed for completion will be 150 days. For further information, Bureau of Reclamation, Area Building, Phoenix, Arizona, or Building 7, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner (826)

(Continued on page 100)

OFFICIAL PROPOSALS

forty-five (45) days after the actual date of the opening thereof.

CHARLES J. MAAS
President, Board of Education

June 1 and 8, 1950

Bids: July 14, 1950 (774)

Sewage Treatment Plant

BETHLEHEM, PA.
NOTICE TO BIDDERS
GENERAL CONSTRUCTION
Contract No. 1

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa. for General Construction of a Sewage Treatment Plant, will be received at the office of the Bethlehem Authority, 528 N. New St., Bethlehem, Pa. until 2:00 A.M. Eastern Standard Time on the 14th day of July 1950 at which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 528 N. New St., Bethlehem, Pa. for use in making up a bid by depositing $20.00 which amount will be refunded if a bid is submitted and the plans are returned in good condition. In case no bid is submitted $15.00 will be refunded if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a Certified Check, Bank Treasurer's check, or Cashier's check, in an amount equal at least to three (3) per cent of the total of the bid submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to two per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. B. Cook, Chairman
Robert L. Fox
Executive Director

Bids: June 28, 1950 (771)

Road Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for

ROUTE 6, SECTIONS 23A & 23B
Construction of Route 6, Sections 23A & 23B, from Little Falls Road to Route 23, Townships of Cedar Grove and Wayne, Essex and Passaic Counties, Federal Project FI-S-6(12), FI-S-6(13), 6(14) under
Roadway Items

Estimated
10,200 cu. yd. Roadway Excavation
Earth
2,000 cu. yd. Wet Excavation
11,200 cu. yd. Borrow Excavation
11,200 cu. yd. Borrow Excavation
2,600 cu. yd. Muskeg Bog Excavation
1 L.S. Dust Layer
10,400 sq. yd. 6" Concrete Base Course
10,400 sq. yd. 2" Type MA-B Bituminous Concrete Surface Course
1 L.S. Bituminous Prime Coat
Bridge Items
1,150 cu. yd. Concrete in Structure
112,000 lb. Structural Steel
198,000 lb. Bar Steel in Structure
2,500 lin. ft. Treated Timber Piles

Bids for the above work will be received at the office of the State Highway Department, Room 15, State House Annex, Trenton, N. J. on Monday, June 26, 1950, at ten o'clock (10:00) A.M. EASTERN STANDARD TIME, at or about 11:00 A.M. DAYLIGHT SAVING TIME, and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the prequalification of the bidder in accordance with the requirements and regulations adopted by the State Highway Commissioner. Bidders should submit a financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 934, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Fulton & Paterson Streets, Paterson, N. J., and/or 600 Bloomfield Avenue, Bloomfield, N. J. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, entitled and dated as above, are on file and may be inspected in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be for less than $200.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

U. S. Government

Bids: June 27, 1950

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Modification of the Lac qui Parle Flood Control Project Minnesota River, near Montevideo, Minnesota, will be received in the office until 11:00 A.M., C.S.T., June 27, 1950 and then publicly opened. Further information upon application. (824)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Mustinka River, Minnesota, near Wheaton, Minnesota, will be received in the office until 11:00 A.M., C.S.T., June 27, 1950 and then publicly opened. Further information upon application. (825)

UNITED STATES DEPARTMENT OF THE INTERIOR Bureau of Reclamation, Sealed bid, Specification No. 7650, will be received by Bureau of Reclamation, Phoenix, Arizona, June 28, 1950, and then publicly opened for furnishing, labor and materials and performing all work for the construction of three 21 kilovolt transmission lines and substations for the Wellton-Mohawk Drainage Pumping Plants No. 1 and No. 2, Gila Project, Arizona. The work is situated near Yuma, Arizona. The lines are wood pole and will consist of approximately 30 miles of single circuit, 3 phase line from the Gila substation to the Wellton-Mohawk switchyard and approximately 30 miles of single circuit, 3 phase line from the Wellton-Mohawk switchyard to Pumping Plants No. 1 and No. 2. Time allowed for completion will be 150 days. For further information, Bureau of Reclamation, Area Building, Phoenix, Arizona, or Building 7, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner (826)

(Continued on page 100)

OFFICIAL PROPOSALS
(Continued from page 99)

Bids: June 21, 1950 (7345)

STATE DEPARTMENT OF PUBLIC WORKS
BUREAU OF CONTRACTS & ACCOUNTS
ALBANY, NEW YORK

Sealed proposals will be received by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., until ten-thirty o'clock A.M., Advanced Standard Time, on WEDNESDAY, JUNE 21, 1950, for projects in the following counties:

County	Deposit Plans	Bid Deposit	Type	Miles	Estimated Engineers
Albany	$10	$5,000	Asp. Conc. Ty. 3	2.22	$84,000
			1A Opt.		
Albany	10	12,000	Asp. Conc. Ty. 1A	1.93	207,000
			Asp. Conc. Ty. 1A		
			Widening, Misc.		
			Work, R. C. Slab		
			Br. 27' Span		
Bronx	100	285,000	C. Conc. Conc.	0.36	5,214,000
			Part 36" Web		
			Steel Under fuel		
			1355' Pl. Girder		
			RR Sp. & Alpha		
			I. Beam Approx.		
			Range		
			This project involves the use of Alpha Composite Construction which is patented and the royalty is $500		
Cattaraugus	10	12,000	Asp. Conc. Ty. 1A	1.93	207,000
			Asp. Conc. Ty. 1A		
			Widening, Misc.		
			Work, R. C. Slab		
			Br. 27' Span		
Chenango	10	2,000	Bean Type Guide Rail	4.44	35,000
			Resurfacing		
Clinton	10	6,000	Asp. Conc. Ty. 3	3.02	103,000
			1A Opt.		
Erie	15	24,000	Asp. Conc. Ty. 1A	0.74	440,196
			Opt. Sp. Pl. Gr.		
			det. Alpha-356		
			27'		
			This project involves the use of Alpha Composite Construction which is patented and the royalty is $6,440		
Herkimer	10	7,000	Asp. Conc. Ty. 4	2.22	423,000
			1A Opt.		
Lewis	10	8,000	Asp. Conc. Ty. 3	5.00	156,000
			1A Opt.		
Montgomery	15	36,000	C. Conc. Conc.	4.88	603,000
			Part 27" Web		
			Asp. Conc. Ty.		
			1A Opt.		
New York	100	180,000	C. Conc. Conc.	0.28	3,284,000
			Part Var Web		
			Rig. Frame Ped.		
			Underpass 16'		
			4 R. C. Viaduct		
			Supp. 56' Ea.		
			R. C. Arch 4 Sp.		
			56' Each Con.		
			Retaining Wall,		
			2 Rig. Frame		
			30' each		
Niagara	15	24,000	Asp. Conc. Ty. 1	0.74	440,107
			1A Opt. Sp. Pl.		
			Girder Alpha		
			356'		
			This project involves the use of Alpha Composite Construction which is patented and the royalty is $6,440		
Onondaga	10	14,000	Asp. Conc. Ty. 1	0.65	262,000
			1A Opt.		
Ontario	15	17,000	Reinf. Conc.	0.55	308,000
			Conc. Part 2 at		
			30' Wide Misc.		
			Work		
Suffolk	100	35,000	Grading & Struct.	4.76	1,729,000
			Part		
			on Arrow Road,		
			A. & H. Sec. 2		
			Sp. Railroad Stone		
			arch 10' Inf.		
			2 Conc. Rigid		
			Frame 75' Ctr. &		
			1 Conc. Lg. Span		
			Arch 42' 2" Ea.		
Sullivan	15	15,000	Bit. Mac. Pen.	0.51	268,000
			Mix. Ty. 1 Conc.		
			Slab Br. 28' Span		
			Elliott Br. no. 1		
			Steel Br. 34' Span		
			Elliott Br. no. 2		
			Steel Br. 34' Span		
			This project involves the use of Alpha Composite Construction which is patented and the royalty is $[illegible]		
Sullivan	10	28,000	Asp. Conc. Ty. 1	15.00	491,000
			1A Opt.		
Tioga	10	3,500	Asp. Conc. Ty. 1	1.08	90,000
			1A Opt. Misc.		
			Work		
Wayne	10	1,000	Landscaping	14.01	57,000
Wayne	10	10,000	Asp. Conc. Ty. 3	5.05	175,000
			1A Opt.		

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers in whose district the roads are located. The name and address of the District Engineers will be furnished on request, and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bailing check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the type designation of the optional type upon which the bid is predicated.

The "if" is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: June 26, 1950 (8319)

Route Grading

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 44, SECTION 15

Grading of Route 44, Section 15, from Berkley Road to Repaupo Road, Borough of Paulsboro and Townships of Greenwich, East Greenwich and Logan, Gloucester County, Federal Project No. F-122-(5). Length 2.724 miles.

Alternative Method "A"

Estimated:
138,800 cu. yds. Roadway Excavation—Earth
267,800 cu. yds. Wet Excavation
1,254,400 cu. yds. Borrow Excavation
Alternative Method "B"
138,800 cu. yds. Roadway Excavation—Earth
163,700 cu. yds. Wet Excavation
1,886,700 cu. yds. Borrow Excavation
41,000 cu. yds. Sand Blanket
112,200 lin. ft. Vertical Sand Drains
(NOTE: Bidders may submit on either Alternative Method "A" or "B".)

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Monday, June 26, 1950, at ten o'clock (10:00) A.M., EASTERN STANDARD TIME), eleven o'clock (11:00) A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the project qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidder must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 835, 80th Congress, and is to be performed in accordance with the special provisions and regulations of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 21 Delaware St., Woodbury, N. J. The attention of bidders is directed to the special provisions covering subletting of or assigning the contract, the minimum wage paid to all common labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten (10%) per cent of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: June 26, 1950 (8320)

Route Grading

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4 PARKWAY, SECTIONS 8A & 9A

Grading of Route 4 Parkway, Sections 8A & 9A, from Route 28 (North Avenue) to Rossmont Avenue, Townships of Cranford and Union, Borough of Kenilworth, Union County, Federal Project No. [illegible] (1). Length 2.514 miles.

Estimated:
126,000 cu. yds. Roadway Excavation—Earth
11,800 cu. yds. Wet Excavation
459,000 cu. yds. Borrow Excavation
5,200 sq. yds. 4" Macadam Base Course
2,100 sq. yds. 2" Type A Surface Course
5,800 sq. yds. 2" Mod. Type Mac. Int. Course
542 tons Pavement, Type MA [illegible]
1,120 units Trimming Existing Trees
900 units Shrubs & Bushy Clumps—Salvage

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Monday, June 26, 1950, at ten o'clock (10:00) A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00) A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the project qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 835, 80th Congress, and is to be performed in accordance with the special provisions and regulations of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor employed on this contract shall be $.75 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten (10%) per cent of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

(Continued on page 101)

OFFICIAL PROPOSALS

(Continued from page 100)

Bids: June 22, 1950 (779)

Water Distribution & Sanitary Sewerage System & Plant

Sealed proposals will be received by the Hanover Water Authority, of Hanover Township Consolidated School, Hanover Wharf, Sussex county, Pennsylvania, until 8:00 o'clock P.M. (Eastern Daylight Saving Time) on Thursday, June 22, 1950, at which time and place the bids will be publicly opened and read aloud, for the following: Water Distribution System, Sanitary Sewerage System and Sewage Treatment Plant, Complete in Place. Specifications and other contract documents may be obtained from Richard J. Harman, Consulting Engineer, 222 North Third Street, Harrisburg, Pennsylvania, upon deposit of $25.00 for each set of documents. If the documents are returned in good condition within ten (10) days after the opening of the bids, one-half amount ($12.50) of the deposit for each set will be refunded. If the documents are not returned within the time specified, the entire amount of the deposit will be forfeited. A certified check in the amount of $12,000.00 must be submitted with the proposal as bid security. No bid may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Hanover Wharf Municipal Authority of Hanover Wharf reserves the right to waive any informalities in or reject any or all bids.

Leon N. Meisser, Secretary
Hanover Wharf Municipal Authority
Hanover Wharf, Pennsylvania

Bids: July 14, 1950 (778)

Plumbing

BETHLEHEM, PA.

NOTICE TO BIDDERS

Contract No. 3

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa. for Plumbing for Sewage Treatment Plant, will be received at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. until 9:00 A.M. Eastern Standard Time on the 14th day of July 1950. At which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. for use in making up a bid by depositing $15.00, which amount will be refunded if bid is submitted and the plans are returned in good condition. In case no bid is submitted, $10.00 will be refunded if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a certified check, Bank Treasurer's check or Cashier's Check, in an amount equal at least to five (5) per cent of the total of the bid submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to fifty per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. R. COYLE, CHAIRMAN
ROBERT L. FOX, Executive Director

OFFICIAL PROPOSALS

Bids: July 14, 1950 (777)

Heating and Ventilating

BETHLEHEM, PA.

NOTICE TO BIDDERS

Contract No. 4

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa. for Heating and Ventilating for Sewage Treatment Plant, will be received at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. until 9:00 A.M. Eastern Standard Time on the 14th day of July 1950. At which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. for use in making up a bid by depositing $15.00, which amount will be refunded if a bid is submitted and the plans are returned in good condition. In case no bid is submitted, $10.00 will be refunded if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a certified check, Bank Treasurer's check, or Cashier's Check, in an amount equal at least to five (5) per cent of the total of the bid submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to fifty per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. R. COYLE, CHAIRMAN
ROBERT L. FOX, Executive Director

Bids: July 14, 1950 (776)

Electric Power, Control and Lighting System

BETHLEHEM, PA.

NOTICE TO BIDDERS

Contract No. 2

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa. for Electric Power, Control and Lighting System for Sewage Treatment Plant, will be received at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. until 9:00 A.M. Eastern Standard Time on the 14th day of July 1950. At which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. for use in making up a bid by depositing $15.00, which amount will be refunded if a bid is submitted and the plans are returned in good condition. In case no bid is submitted, $10.00 will be refunded if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a certified check, Bank Treasurer's check, or Cashier's Check, in an amount equal at least to five (5) per cent of the total of the bids submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to fifty per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. R. COYLE, CHAIRMAN
ROBERT L. FOX, Executive Director

OFFICIAL PROPOSALS

or Cashier's Check, in an amount equal at least to five (5) per cent of the total of the bids submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to fifty per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. R. COYLE, CHAIRMAN
ROBERT L. FOX, Executive Director

Bids: July 14, 1950 (775)

Pumping Equipment

BETHLEHEM, PA.

NOTICE TO BIDDERS

SEWAGE TREATMENT PLANT

CONTRACT NO. 2

Sealed proposals addressed to the Bethlehem Authority of the City of Bethlehem, Pa. for Sewage Pumping Equipment and Appurtenances for Sewage Treatment Plant, will be received at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. until 9:00 A.M. Eastern Standard Time on the 14th day of July 1950, At which time and place they will be publicly opened and read.

Plans and specifications, form of contract and bidding blanks are on file and may be obtained at the office of the Bethlehem Authority, 25 N. New St., Bethlehem, Pa. for use in making up a bid by depositing $15.00, which amount will be refunded if a bid is submitted and the plans are returned in good condition. In case no bid is submitted, $10.00 will be refunded if said plans and specifications are returned in good condition within two weeks of the date set for the receiving of bids by the Authority.

No bidder will be permitted to withdraw his bid for a period of thirty (30) days after the date set for the opening of the bids.

The Bethlehem Authority reserves the right to waive any informality in any bid, to reject any or all proposals or to accept any bid deemed advisable for the best interests of the City of Bethlehem, Pennsylvania.

Each proposal shall be accompanied by a certified Check, Bank Treasurer's Check, or Cashier's Check, in an amount equal at least to five (5) per cent of the total of the bids submitted, drawn to the order of the Bethlehem Authority, Bethlehem, Pennsylvania. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company Performance Bond in an amount equal to fifty per cent of the total of the bid as submitted and a separate Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

Bethlehem Authority
Bethlehem, Pennsylvania
By: W. R. COYLE, CHAIRMAN
ROBERT L. FOX, Executive Director

U. S. Government

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS, end of Pyramid Street, New Orleans, La., received bid will be received on site until 2:00 p.m., July 11, 1950, and then opened for the construction of superstructure of gated portion of Morganza control structure in the New Orleans District. The principal features involved are approximately 12,000 cubic yards concrete, 1,000,000 lbs reinforcing steel, 12,000 bbls Portland cement, 5,000,000 lbs structural steel, 245,000 lbs corrosion-resisting steel, and miscellaneous other work including excavation and backfill, drainage system, and installation of 127 steel gates. Further information on application. (782)

WANTED FOR CHEMICAL PLANT LOCATED IN SOUTH

ESTIMATORS

Must be experienced engineers, under 40, familiar with Refinery and Chemical Plant design and capable of estimating process equipment installations from flow diagrams and specifications. Give full information, experience record and salary expected.

DRAFTSMEN-DESIGNERS

Preferably with ME, CE, or EE degree, under 40, with at least three years drafting experience in Chemical or Oil Industry. Give full information, experience record and salary expected.

P-6815, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CONTRACTING ENGINEER

STRUCTURAL STEEL

Long established steel fabricating plant in New England has an opening, due to promotions, for a man with experience in estimating and selling structural steel and miscellaneous iron work.

He must have personal qualifications and sufficient experience to enable him to take charge of these departments.

Submit complete resume in strict confidence.

SW-6788, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED

THREE (3) COMPETENT SALES AGENTS

With following among contractors & dealers in

Northern New Jersey, Westchester
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To represent old established reinforcing bar fabricator having New York metropolitan area office plant and warehouse with complete line of reinforcing steel products. Prefer agents now contacting field on allied, non-competitive lines. Attractive commission arrangements.

RW-6858, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR

Wanted by established Pittsburgh firm of commercial and industrial contractors. Must have had experience with contractors engaged in similar work. State salary, experience and when available. Splendid opportunity for advancement.

P-6899, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

BOLT and NUT SALESMAN

Heavy Hardware Manufacturing Company offers position to salesman experienced in contacting general contractors.

SW-6749, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

REPLIES (Box No.) Address to office nearest you:
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CONSTRUCTION COMPANY, operating nationwide, specializing in structural concrete, such as bridge piers and their foundations and mass concrete such as dams, requires A No. 1 construction engineer and estimator capable of planning and layout, including forms, and economical handling of materials. To be considered, complete information must be furnished. Our organization has been advised of this advertisement. P-6804, Engineering News-Record

STRUCTURAL STEEL and ornamental iron Shop of medium size located in New Jersey needs a first class shop superintendent who can also layout. Also a first class ornamental layerout. Give full details. P-6780, Engineering News-Record

INSTRUCTOR IN Civil Engineering. Good opportunity to enter teaching well equipped department. New England college. P-6797, Engineering News-Record

WANTED: HEAVY Construction Estimator. Large Midwest contractor operating nationwide desires services of an experienced estimator familiar with current prices and methods to estimate heavy structures of all types. Field experience in construction necessary. Must be willing to travel extensively, mainly in southern states. Permanent position. Write P-6811, Engineering News-Record

ESTIMATOR EXPERIENCED in general take-off of commercial, industrial and public buildings. Give history, record and salary expected in first letter. Kuhn Construction Company, Charleston, West Virginia.

SELLING OPPORTUNITY OFFERED

SALES REPRESENTATIVES. Soundly established progressive Brgs. Exc. openings for three district sales representatives. Experience in pipe, valves or fittings an asset. Excellent opportunity. Write RW-6862, Engineering News-Record stating complete detailed background. All correspondence confidential.

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POSITIONS WANTED

CONSTRUCTION MGR. Gen'l Supt. Exp. in handling all details of entire heavy and light bldg. and allied work. 30 yrs. exp. Salary $12,000 week. PW-6795, Engineering News-Record

PROJECT MANAGER or Construction Supt. available. Age 35, married, 24 years experience supervising refrigeration, heating, industrial, mechanical, commercial, water, sewer, gas and sewage systems. Organize and supervise field and office. Salary and resume. Edgar A. Levy, Engineer. PW-6794, Engineering News-Record

GENERAL SUPERINTENDENT. 30 years, 46 years experience. Thoroughly experienced in heavy, industrial, building, highway, commercial, industrial, heavy rigging, etc. Available Immediately. Address PW-6815, Engineering News-Record

DESIGN ENGINEER (U.S.A.M.S., M.C.E., New York state license) Experienced bridge, tunnel and tube designs by Assoc. Mem. ASCE. Also experience in design of hydroelectric plants, water supply, drainage, sewage disposal systems, buildings and structures. Resume on request. Box 1, Bowling Green Station, New York 4, N. Y.

with methods in field, estimating, purchasing, office organizations, and experience in industrial, public works, heavy construction. Location preferred: Texas, Louisiana, Arkansas, Oklahoma. PW-6802, Engineering News-Record

CONSTRUCTION SUPERINTENDENT

Graduate civil engineer-estimator. Eighteen years foreign service Africa, Indies, South America, some domestic, speaks many languages. Heavy construction specialist dams, hydros, power plants. Can offer sound, money saving field supervision as well as qualified management ability.

PW-6702, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

CIVIL ENGINEER

With 10 to 15 years experience to head Civil Engineering Section of consulting firm. Must be capable of supervising other engineers in studies, design and preparation of plans and specifications on sanitary, hydraulic and street projects. Submit complete data on education and experience. Excellent opportunity.

STANLEY ENGINEERING COMPANY
MUSCATINE, IOWA

CITY OF DETROIT

Engineers experienced in the design and construction of water works needed for $35,000,000 project. Starting salary $4,900, $5,300, $5,700 or $6,450 per year with annual increases. Submit resume of experience with application required.

Detroit Civil Service Commission
1501 Water Board Bldg.
735 Randolph Street, Detroit 26, Mich.

GRAVEL PLANT SUPERINTENDENT

Wanted for operating and managing portable and permanent plants in Indiana and Michigan. State experience, references and salary.

P-6206, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STRUCTURAL DRAFTSMEN

Needed Several First Class experienced detailers and checkers. Only those with previous structural fabricating shop experience need apply. Give complete information to Personnel Dept.

Consolidated Western Steel Corp.
Orange, Texas

CONSTRUCTION PERSONNEL

Executives, power superintendents, engineers, mechanics, and all qualified personnel needed with construction Heavy industrial, earth moving, marine, pipelining, building trades. Responsible firms can list their job descriptions in the U.S. and Foreign Construction Compendium, without extra fees to company or applicant.

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P. O. Box 295 Metuchen, N. J.

POSITIONS WANTED

OFFICE MANAGER. Cost Accountant. Seven years experience in all phases of construction office detail. Masters degree in business adm., one year grad. work in Personnel Psychology. Reading and speaking knowledge of French, Spanish. Age 35, married, 1 child. Will travel Western U.S.A. for permanent position. PW-6815, Engineering News-Record

CONSTRUCTION MANAGER. 35. Engineering Degree. 12 year continuous employment in construction industry, four foreign. Present salary $8,000. Desire increased opportunities. Will relocate. PW-6816, Engineering News-Record

CONSTRUCTION GEN. Supt. or Job Supt. Technical Training, offer to operate speed and efficiency. Practical experience 15 years in store alteration and modernization, Travel. PW-6814, Engineering News-Record

CONSTRUCTION ENGINEER—15 years experience, heavy construction, dams, bridges, highway, graduate, Resume sent on request or will arrange interview. Available July 1. PW-6791, Engineering News-Record

PLANT ENGR. B. E. married, 4 years experience large grade estimating, cost control in paper converting industry. Desires position in New York Metropolitan Area or Long Island. PW-6807, Engineering News-Record

ANNAPOLIS GRADUATE, 29, married, one child. Six years Naval exp. in Marine Engineering, Executive Administration, four years civil exp. in Process and Maintenance Engineering in experimental plant. E. I. du Pont de Nemours, six years sales experience desires responsible position as a salesperson. Write PW-6785, Engineering News-Record

(Continued on the opposite page)

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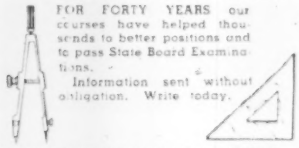

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POSITIONS WANTED

(Continued from the opposite page)

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Literature and Sample on request
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- 1 D2 Cat with tracks on half-yard bucket
- 1 Link Belt Backhoe Model LS40 serial 807, rebuilt
- 1 54B High Lift Shovel 1946 Model, excellent condition
- 2 Garwood Scrapers Model 525, 90% new. A real buy.
- 2 Scoopmobiles, demonstrators
- 1 Lima 3/4 Paymaster Shovel, Cat Diesel
- 1 Marion 48 2 1/2 yd. dragline 95' boom

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19930 Detroit Rd. Rocky River, Ohio
EDison 1-1010

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1 Pandolfo, S. F. PANDOLFO
111 Asylum St. Hartford, Conn.
Tel. 6-5111 & 5-0111

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Phone 3-2530 Clearwater, Fla.

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330 W. 42nd St., New York 18, N. Y.

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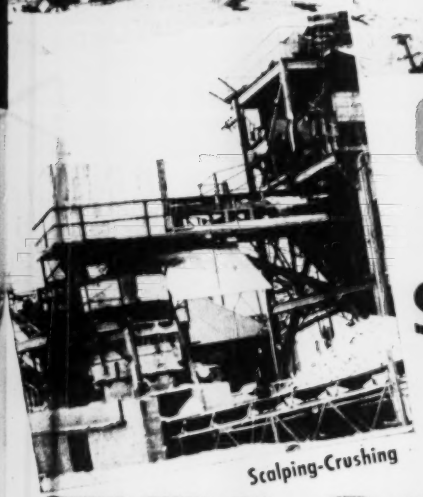

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(Continued on next page)

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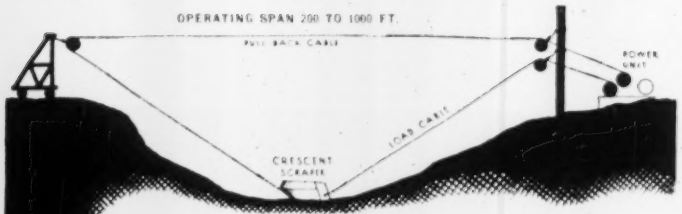

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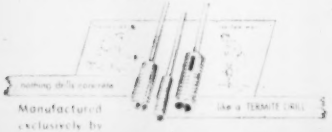

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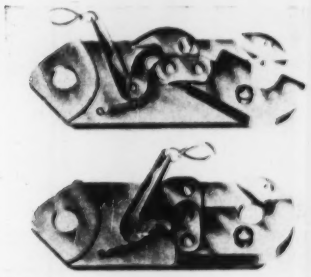

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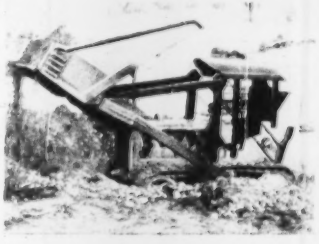


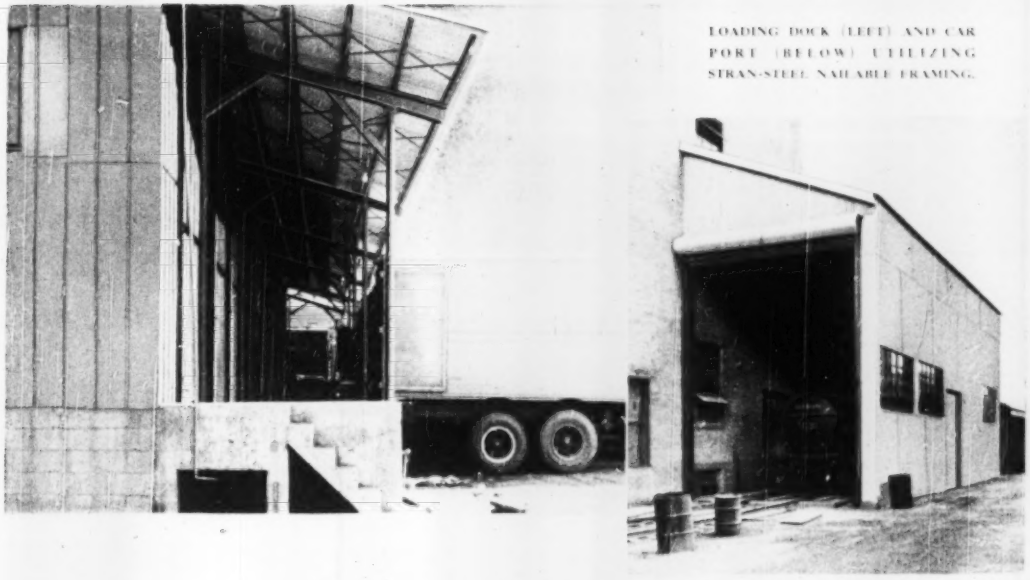
Small Overshot Loader

Recent addition to line of Overshot loaders is the Model 4-C for mounting on utility-size tractors including the Caterpillar D-4, Allis-Chalmers HD-5, and International TD-9. The loader has a rated capacity of 1 yd and a 20-sec loading cycle. Overshot action eliminates swing and blocking. The Model 4-C is made in two heights for surface operation and for tunneling. Standard unit has an overall height of 15 ft 5 in. with bucket raised, and a dumping clearance of 8 ft. Underground unit has an overall height of 12 ft with bucket raised, and a dumping clearance of 6 ft.—JOHN AUSTIN, INC., DENVER, COLO.

Aluminum-Foil Roofing

Lightweight roofing material utilizes aluminum foil between cotton-gum-base liners and a finish coating of marble or granite chips of selected

(Continued on page 114)



LOADING DOCK (LEFT) AND CAR PORT (BELOW) UTILIZING STRAN-STEEL NAILABLE FRAMING.

WHY IT PAYS TO STOCK-PILE

STRAN-STEEL FRAMING

4 REASONS

In any industrial operation there are times when additional buildings and plant alterations of a temporary or permanent nature are required. At such times a stock pile of Stran-Steel framing members pays off handsomely.

MULTI-PURPOSE. Stran-Steel framing can be used on any enclosed building or shelter-type structure such as garage, shed, warehouse, lean-to or canopy . . . also for permanent and movable incombustible partitions.

NAILABLE. All joists, studs, rafters and purlins have patented nailing groove, permitting the application of collateral material, inside and outside, with ordinary tools and nails.

RE-USEABLE. Framing members are of light, tough, high-quality steel . . . they are incombustible and virtually indestructible . . . can be used over and over. In storage they will not shrink or lose their usefulness.

FAST ERECTION. No special skill is required . . . ordinary workmen using carpenters' tools can erect Stran-Steel framing swiftly, accurately and economically. The "in place" cost is usually less.

The Ideal Framing

Stran-Steel framing is flexible for modern design, and its use results in buildings of great rigidity. The nailable feature provides speed of erection for application of all types of wall and ceiling finishes. In stock-pile storage there is no deterioration, no shrinkage, no loss.

REGISTERED U.S. PATENT OFFICE

YOU NAIL TO STRAN-STEEL FRAMING

GREAT LAKES STEEL CORPORATION

STRAN-STEEL DIVISION • ECORSE, DETROIT 29, MICH. • UNIT OF NATIONAL STEEL CORPORATION

Save...
switch to WARSOP drills and breakers

It's real economy

★ Low Initial Cost ★ Low Maintenance Cost
★ Low Operating Cost ★ Low Transportation Cost

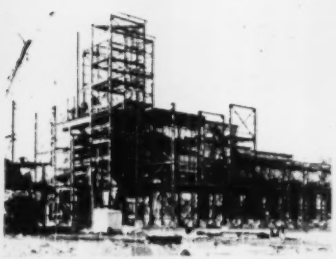
No Battery • Positive Dual-Fan Cooling
Variable Speed Control • No Springs
Completely Self-Contained

There's real Savings when you use Warsop Portable Rock Drills and Breakers on all types of construction and demolition work. With Warsop hard-hitting power tools you need no cables, no hose. Compact and light in weight, they are easily transported from job-to-job. Wherever you have breaking or drilling jobs that require only one or two machines figure to use WARSOP. You'll save time, labor and equipment costs.

Write for descriptive folders and specifications.

WARSOP POWER TOOLS, Inc.
347 NORTH 12TH STREET, PHILADELPHIA 7, PA.

Warsop
PORTABLE DRILLS—BREAKERS
self-contained—gasoline engine driven



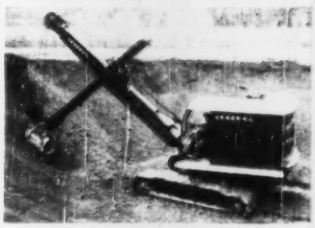
Pleasant View Mine coal tipple, West Kentucky Coal Co., Madisonville, Ky. Steel by International.

Maybe you'll never need a steel coal tipple . . .

But if you do, International Steel will furnish it. We can fabricate in steel anything you need for your steel building requirements. Whatever you are building—office buildings, industrial plants, commercial structures—whatever you need—stairs, girders, trusses, or special steel buildings—International Steel is your best source of supply. Write today—tell us your needs.

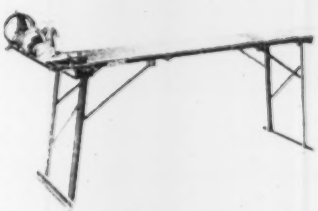
INTERNATIONAL STEEL CO. 1803 EDGAR ST. • EVANSVILLE 7, IND.

color. Alumi-Lite roof has been passed by the National Board of Fire Underwriters with an A rating and is FHA approved (title 2 loans). Economy in installation is achieved by elimination of all metal flashing on chimneys and valleys. It can be used on pitches of 5 on 12 and up.—ALUMINUM BUILDING PRODUCTS, INC., ROUTE 1, ATLANTIC BLVD., JACKSONVILLE, FLA.



One-Yard Excavator

Air-controlled excavator and material handler has a 1-yd capacity. The Model 420 features air control of all major motions including swinging, hoisting, steering, boomhoist (up and down), swing brake, shovel crowd and retract, and shovel dipper trip. Independent travel and independent boomhoist are featured as standard equipment on the 420. Machinery is placed on the deck so that good balance is obtained, and the need for a large amount of counterweight is eliminated. The Model 420 is offered as a shovel, dragline, clamshell, lifting crane, hoe, piledriver, magnet crane, and for other classes of service. Diesel or gasoline power is available.—GENERAL EXCAVATOR CO., MARION, OHIO.



Portable Saw Table

Collapsible saw table folds into a size small enough to fit into a car trunk. It permits using a power hand saw for rip, crosscut, mitering, and other standard types of cuts. Back guide on end of table is adjustable to fit shoe of any saw. The table is 84 in. long, 30 in. wide, 34 in. tall, and weighs 75 lb.—SALES SERVICE MACHINE TOOL CO., 2363 UNIVERSITY AVE., ST. PAUL 4, MINN.

Push-Button-Control Hoists

Material elevators can be rendered fully automatic by the 500 Series electric hoists. One or a number of push-

(Continued on page 116)

Heavy jobs off-the-road...heavy equipment over-the-road GENERAL

GETS MORE DONE, MOVES MORE TONS

EASIER! FASTER! SAFER! CHEAPER!

Here's General's dual-purpose team. The General H. C. T. with more, safe traction to go in and get the load . . . and take it long distances over the highway. The General L. C. M. to work 80% off-the-highway. Massive, deep lugs develop extra traction under heavy loads. Let your local General Tire Distributor show you how you can make more profit with this Top-Quality dual-purpose Truck Tire Team.

SPECIFY GENERAL TIRES ON NEW EQUIPMENT

YOU'LL WANT TO *READ* THIS STORY OF THE MOVING PROFESSION

Whether you are concerned with moving cottages or city blocks, you will want to read this fascinating story of sixty years with the E. W. LaPlante Co. See how one of the nation's outstanding organizations of moving engineers has "juggled" millions of tons —*safely!*

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RUGGEDLY-BUILT
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 10 double-acting hammers and 5 single-acting hammers. Write for free Bulletin.
Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

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button stations can be used to operate the hoists. The 800 Series contains models in five sizes with ratings from 2 to 10 hp and capacities from 600 to 3,000 lb. Hoisting speed is 100 fpm, single-line pull. Double sheave blocks top and bottom, and four lines, quadruple this capacity. All models are equipped with 220-440 volt 3-phase 60-cycle ac motors. Other motors are available.—KING MFG. CORP., 3146 W. CHICAGO AVE., CHICAGO 22, ILL.

Water-Sprinkler Tanks

Gravity and pressure-type sprinkler tanks are recommended for soil stabilization, dust control, weed control, and other water-hauling requirements. The Littleford tanks can be skid, truck, or 4-wheel trailer mounted, and are available in capacities from 800 to 1,500 gal. Large manholes simplify filling. Spray bars are designed so that they are easily removed. The bars can be provided with shifting and end folding features.—LITTLEFORD BROS., INC., 415 E. PEARL ST., CINCINNATI 2, OHIO.

New Product Briefs

Pentachlorophenol is available in a 1:10 concentrate as a permanent, non-discoloring, and paintable wood preserver and termite repellent. Produced by: Monsanto Chemical Co.

Pocket telescope (fountain-pen size) has a 6-power magnification. The Pen-scope is a precision instrument having a field of view of 315 ft at 1,000 yd. Maker: Pan-technics, Ltd., Emeryville, Calif.

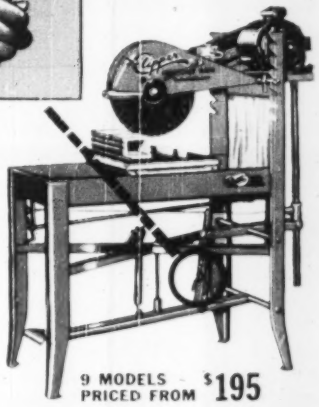
Diesel nozzle tester is a universal tool for servicing all makes of injection nozzles. Connection is by connector tube and interchangeable nuts. Maker: Bacharach Industrial Instrument Co., Pittsburgh 8, Pa.

Primer for corroded iron and steel so very circumstances where complete rust removal is not possible. The Ox-Rust dries in 4 hours for recoating, and can be applied by brush or spray. Maker: Brooklyn Varnish Mfg. Co., Inc., Brooklyn 1, N. Y.

Clipper LEADS AGAIN WITH A NEW INVENTION THAT CUTS BLADE COSTS

DIAL-A-CUT and SAVE-A-BLADE

SAVE-A-BLADE DIAL *Properly Cushions* BLADE PRESSURE for LONGEST BLADE LIFE



FREE TRIAL

Don't wonder about the **greater profits** you'll make with the NEW Clipper SAVE-A-BLADE Dial. A FREE TRIAL will convince you! Only thru Clipper's outstanding policy of FREE TRIAL are you guaranteed . . . ACTUAL TESTING ON THE JOB . . . FULL SATISFACTION . . . AT NO OBLIGATION!

. . . by the *Originators of Masonry Saws*

9 MODELS PRICED FROM $195

● Just turn the "SAVE-A-BLADE" Dial to the hardness of the material you're cutting, and the Clipper Pressure Equalizer Spring *automatically* sets to the tension that guarantees faster cutting and longest blade life—Whether the material is HARD or SOFT . . . Whether using Diamond or Abrasive Blades . . . Cutting Wet or Dry with the "DUSTLESS" Model HD.

Another addition to those already famous Clipper features is "SELECT-A-NOTCH"—"ADJUST-A-CUT"—"WET-or-DRY" Pump—and—"ONE-SPOT" Operation.

GUARDS YOUR VALUABLE DIAMOND BLADES

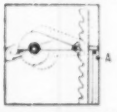
The "DIAMOND" setting on your SAVE-A-BLADE Dial automatically cushions the blade against shock by relieving rim of excess pressure or binding.

ONLY Clipper GIVES YOU ALL THESE EXCLUSIVE FEATURES!

Automatic Blade Pressure

● Makes your blades last longer... Because Equalizer Spring automatically cushions blade pressure whether cutting HARD or SOFT materials. Outstanding for blade economy.

Select-A-Notch



● One man easily adjusts Cutting Head to desired height. Whether cutting 12" or 1" material. Operator's hands merely guide. All weight is supported by rear Connecting Bar.

Adjust-A-Cut Control

● Merely pull the knob — and the Cutting Head is free for finger tip setting at any desired angle. Release the Knob — and Head is locked in the desired position.

"Wet or Dry" Pump

● No need to remove belt when cutting dry. No maintenance. Factory Sealed. An exclusive Clipper development. Patented Water Application Unit controls water flow.

One-Spot Operation

● From ONE SPOT at the front of his Clipper Saw, the Operator performs every cutting operation and makes every saw adjustment. Never leaves his operating position.

Serving the World as the World's Largest Manufacturer of Masonry Saws

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Manufacturers' Publications

Lighting Specifications—Newly revised edition of IES Specification Booklet [illegible] pp.) contains four officially approved new specifications, as well as important revisions of existing specifications. Details are provided for 15 different fluorescent and incandescent industrial lighting units. [illegible] Illuminating Engineering Society, 51 W. Madison St., Chicago 6, Ill.

Liquid Shock Absorbers—One page data sheet contains information on the Hydro-Spring liquid-shock absorbers and excess-pressure eliminators. The sheet lists several features, describes various applications, and lists specifications for the four models in which these units are available. R-S Products Corp., 4530 Germantown Ave., Philadelphia 44, Pa.

Automotive Winch—Model [illegible] winch for 15- to 25-ton trucks is described in Bulletin 113, a 4-page data sheet. The winch has a cable working load of 20,000 lb and a gear ratio of 40:1. The data sheet lists the principal features of operation. Engineering drawings provide data on construction and dimensions.—Ramsey Winch Mfg. Co., Box 3053, Tulsa 5, Okla.

British-Made Excavators—Two new bulletins have been published describing the Ruston excavators. Bulletin [illegible] pp.) describes features of construction and operation of the Ruston walking dragline. Bulletin [illegible] pp.) describes the Model 41RB crane-mounted, diesel-engine shovel.—Ransomes & Rapier, Ltd., Waterside Works, Ipswich, England.

Drafting Machines—Instruction booklet [illegible] pp.) describes the Vemco drafting machines. The first twelve pages explain use and various adjustments of standard machines. How to follow basic instructions with special attachments. Another section covers use of the civil engineer's drafting machine.—V. & E. Mfg. Co., 758 S. Fair Oaks Ave., Pasadena 2, Calif.

Treated Wood—Two pamphlets on treated wood are now available. One, [illegible] pp.) consists of instructions and recommendations for buying wood treated with formulations of pentachlorophenol to resist the attack of decay fungi, wood-destroying insects, and dimensional change caused by excess

Continued on next page.

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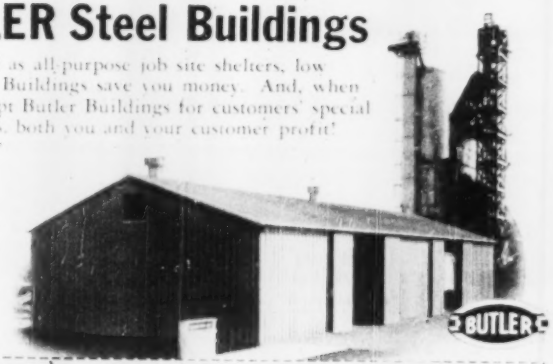
Used as all-purpose job site shelters, low cost Butler Buildings save you money. And, when you adapt Butler Buildings for customers' special needs, both you and your customer profit!



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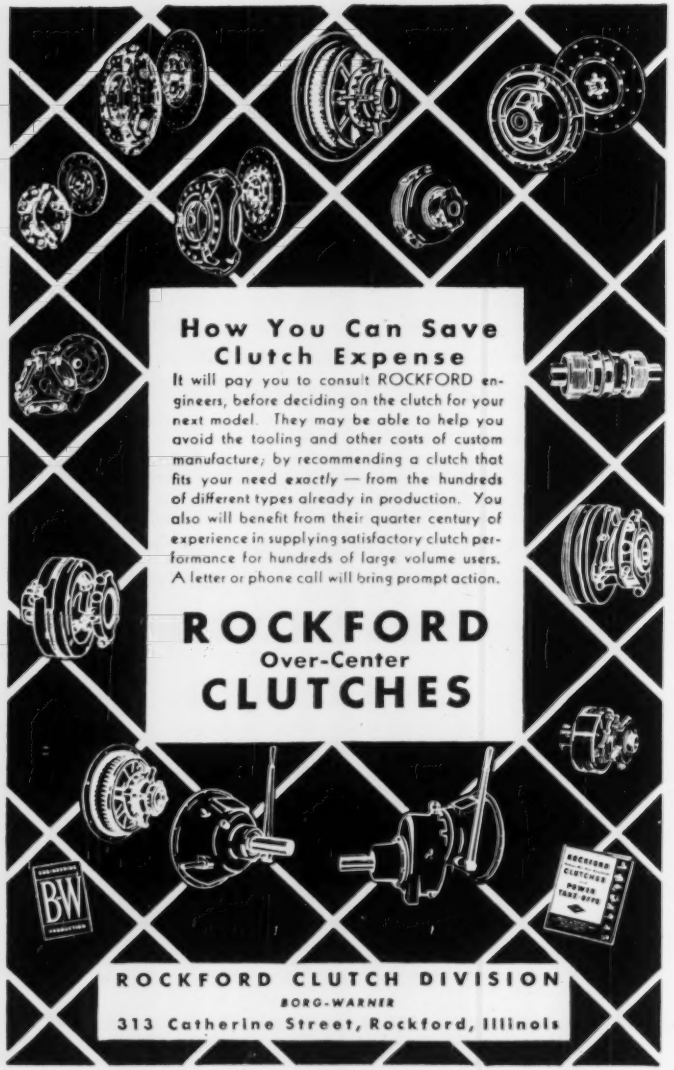
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save moisture or lack of moisture. The guide covers five types of treatment. The other booklet, entitled "Before You Build or Buy", is pointed toward those dealing with house building. It contains pertinent information on the correct use of pentachlorophenol in protecting the wooden parts of buildings. — The Dow Chemical Co., Midland, Mich.

Foundation Columns — Anchored in rock-socket foundations are the feature of this 8-pager. The bulletin describes this type of Drilled-in Caisson, lists its principal features, describes its installation, and lists suggested specifications. Engineering information covers test and design data for determining capacities of Drilled-in Caissons. — Drilled-in Caisson Corp., 2 Park Ave., New York 16, N. Y.

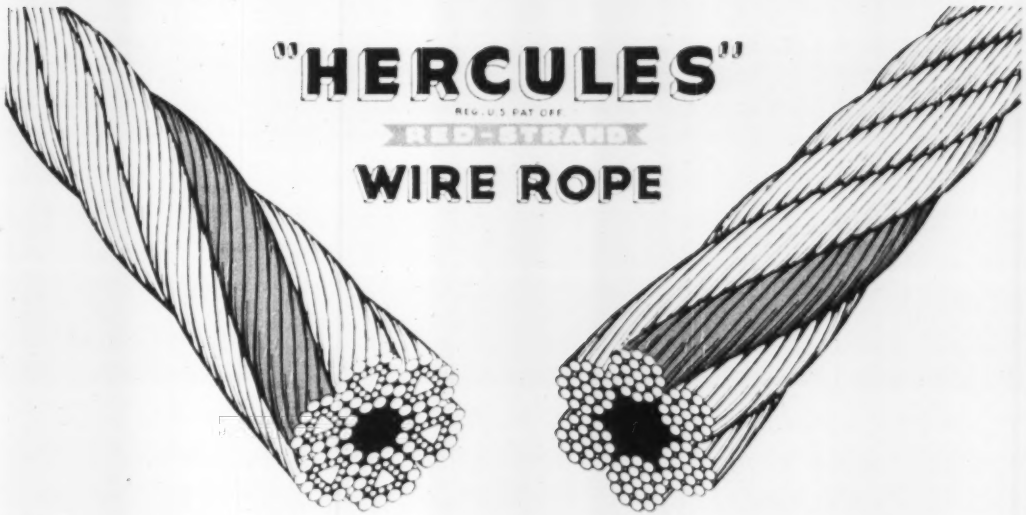
Pump Catalog—Three types of pumps are described in catalogs published recently. Catalog F-748 describes sump pumps in capacities from 50 to 150 gpm; Catalog F-1049, mixed-flow volute-type pump, and Catalog F-249, non-clogging centrifugal pumps in a capacity range from 50 to 20,000 gpm. — Economy Pumps, Inc., Hamilton, Ohio.

Power Tools — Catalog (36 pp) describes power tools for wood, metal, and plastics. Included are band saws, radial and tilting-arbor saws, drill presses, jointers, lathes and shapers, air feeds, surfacers, and flexible-shaft machines. Specifications and operating conditions for each machine are listed. — Walker-Turner Div., Kearney & Trecker Corp., Plainfield, N. J.

Mechanical, Hydraulic Jacks—Specifications and application information on all sizes and types of mechanical and hydraulic jacks are included in 32-p Catalog 50. This letter-file-size catalog carries full details of the 125 models of ratchet-lowering, hydraulic and screw-type jacks that comprise the standard Simplex line. — Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.

Hard-Surfacing — Two bulletins now available describe repair of construction equipment by welding. One discusses Stoico "Side-Kick" hard-surfacing electrodes for protecting parts subject to severe impact and abrasion. Uses listed include repair of crusher parts, shovel teeth and lips, bulldozer blades, tractor grousers, clamshell bucket lips, and pumpshells and impellers. The other bulletin describes rebuilding and repairing worn buckets with Manganite.

(Continued on page 122)



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There are many reasons why it REPEATS

...and they are important to every wire rope user

Results are the most accurate means of measuring true value. And it is because so many users of "HERCULES" (Red Strand) Wire Rope *have* measured it by this yardstick, that it is called on for so many "repeat" performances; that, too, is the reason why it has been so generally accepted, in one industry after another.

What are the reasons for the outstanding service of this particular wire rope? First, it is the product of over half a century of manufacturing experience . . . it is made of acid open hearth steel wire . . . it is the correctly balanced combination of strength, toughness and durability . . . its uniformity is maintained by advanced methods of manufacture, rigid tests and careful inspections.

As "HERCULES" (Red-Strand) Wire Rope is made in both Round Strand and Flattened Strand constructions—either Preformed or Non-Preformed, there is in this one grade, a "right rope" for any heavy duty job, and our Engineering Department will be glad to help you make the correct selection.

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Magnet Cranes setting new records for fast handling of bulk metal

Scrap yards, plants, foundries, and warehouses across the nation report record-breaking performances with OSGOOD Magnet Cranes. Multi-shaped scrap, plates, and billets—large or small—are handled with greatest ease. Carriers are loaded and yards rearranged in a fraction of the time formerly required. Safety of workers is greatly increased.

Air Control of all primary motions, such as swing, travel, hoisting, steering, and retract—saves wear on both machine and operator. Famous OSGOOD Air Cushion Clutches activate swing, travel, and retract motions . . . eliminate jerking and grabbing . . . provide instant, accurate, velvet-smooth response. Quickly adaptable to shovel, dragline, clamshell and hoe. See OSGOOD before you buy.

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a special analysis manganese-nickel steel. Other applications for Mangmat include repair of crusher parts, hammermill hammers, tractor sprockets and pads, shovel and dragline bucket teeth, chutes, truck bottoms, and conveyor-chain wear strips.—STULZ-SICKLES CO., 154 LAFAYETTE ST., NEWARK 5, N. J.

Plywood-Magnesium Forms—Booklet (14 pp.) describes plywood forms in magnesium frames. Features of this type of form are listed, as are the sizes in which they are available. Accessories for use with the forms are also given feature treatment.—SYMONS CLAMP & MFG. CO., 4265 W. DIVERSEY AVE., CHICAGO 39, ILL.

Planned Parking Facility—Construction and operation of a new-type parking center is described and illustrated in this 8-p catalog. The Helix Duplex Motor Park features efficient operation, simplicity of layout, and adaptibility. The catalog discusses the theory of the Motor Park, explains parking and evacuation, engineering and construction, operating expenses, parking fees, and other pertinent factors. Dimensions and capacities are listed for several size units.—ST. ALBANS ENGINEERS, ST. ALBANS, W. VA.

Air Tools—Bulletin SCT-50 describes the complete line of 1950 Schramm Golden Anniversary tools. Included are rock drills, the WDR-126 wagon drill, paving breakers, clay spades, trench diggers, backfill and tie tampers, chain saws, vibrators, air hose, and all necessary accessories. The bulletin illustrates each tool and contains complete specifications and recommended applications.—SCHRAMM, INC., WEST CHESTER, PA.

Bascule Gates—Working parts and general operating features of the Smith bascule gate are described and illustrated in Bulletin 153 (12 pp.). These gates are designed particularly for service in pond-level and flood-control applications. The bulletin contains several photographs showing the gates in use, and shop views indicating their construction. Also listed is other equipment produced by the company.—S. MORGAN SMITH CO., YORK, PA.

Brick and Tile Construction—The Structural Clay Products Institute has inaugurated a monthly information service to further better masonry structures. The first four issues cover cold-weather masonry construction, efflorescence, construction of watertight masonry walls, and painting brick and tile walls.—STRUCTURAL CLAY PRODUCTS INSTITUTE, 1520 EIGHTEENTH ST., N. W., WASHINGTON 6, D. C.

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Letter from HOUSTON

The construction industry of Houston, Tex., is feeling good this spring. Stability exists in labor relations that have been other than peaceful since the war, and business is brisk (with overtones of fierce competition).

Newspapers throughout the nation noted the former fact when on March 25, twenty-three Houston AFL building and construction unions, together with 329 contractors, announced their agreement "... to settle wage disputes without arbitrary recourse to strikes or lockouts." This was good news to a city that had suffered four major construction strikes in 1949. Under the treaty, no union may ask for a wage adjustment without approval by two-thirds of the signatory unions. Three-fourths of the unions have to approve a proposed strike. The agreement runs through June 30, 1951, and is renewable on a year-to-year basis.

The agency for the contractors is the Gulf Coast Construction Employers Council, of which general contractor Harold Van Buskirk is president and Joe J. Brady is executive secretary.

The stabilization agreement seems to indicate that union labor is satisfied with conditions in Houston. (Wages are similar to those in other Gulf Coast cities.)

Boosters say the unions are satisfied because the men are certain of steady work in expansionist Houston. Productivity also is good. Loy Duddlesten, executive secretary of the Houston chapter, AGC, says that bricklayers lay 800-1,000 bricks daily now—about double what they put down a year and a half ago.

• Publicity man figures—The rosy construction labor picture may be due to the excellent publicity Houston's glowing future continues to get in America's press. This publicity attracts labor of all kinds (particularly in the fall and winter). Public relations is an essential part of most activities, from the Chamber of Commerce down to many small business organizations, and including construction firms.

Construction's importance is underestimated by no one. Every excavation, every quietly growing steel frame (they're all welded here) is an object of pride for the man on the street. To him each project reaffirms his faith in a never-dimming opportunity to work and live in Houston.

• Big contractor runs open shop—Houston's labor picture may be influenced by another feature—one that appears curious to the construction man who is accustomed to the virtual labor monopoly of building trades unions in many parts of the country. Brown and Root, Inc., a world-wide contracting firm and one of the most important factors in the otherwise-organized local construction business, is strictly open shop. The firm does it by paying better than union scale, training its own forces and maintaining a volume of work that will assure continuous employment for trained workers. Moreover, the firm sticks to heavy construction, which means limited contact with the older, more highly organized trades. Locally, Brown and Root is building a big stadium for Rice Institute. The firm took the job on a tight schedule, for completion in time for the 1950 football season, and there's no worry about meeting the date. An AFL man picketes the gate, but men and materials pass regularly. One favorable factor is incomplete teamsters-union organization in Houston.

Opinions vary as to the effect on Houston construction of Brown and Root's non-unionism. It's all a matter of labor principle with Herman Brown, and construction men have no doubt that the firm would quit the construction business rather than yield to dictation by unions. (Brown and Root is said to have diverse parts—a salvage business, real estate interests, a long-distance gas pipeline and a big dude ranch, to name a few.)

AGC's secretary Duddlesten thinks the presence of a large and successful open-shop contractor definitely checks undue wage increases in Houston, and therefore is good for business. Duddlesten is in close touch with the overall construction labor situation because his chapter is bargaining agent for 91 general contractors in their relations with several unions. Naturally, the chapter is an important participant in the Construction Employers Council.

• AGC gives maximum service—Incidentally the Houston chapter performs some highly effective services for its members. It publishes a semi-weekly tabloid whose most important feature is a series of items entitled "Project Information." Each item describes an impending job and lists contractors who already have submitted bids. A front-page feature, "On File in the AGC Plan Rooms," informs members of jobs they can figure from plans at the headquarters. The service also is available to 559 mechanical-trades subcontractors, who are associate members of the chapter. When an associate comes in to take off a job, the fact is noted in a card file. Then any general contractor who is looking for subcontract bids on a given project can look in the file to find out from whom he can expect a quick price. Duddlesten calls this the Houston Plan; he says that several other chapters have adopted it.

• Competition keen—Right now the AGC plan room is a mighty lively place. Despite a high construction volume, the contractors are scrambling for work. Perhaps this is because labor, machines and materials are easier to get than they were a year and more ago, so individual contractors feel they can take more work. Perhaps they're scrambling because some contractors are over-equipped, and are willing to take jobs near cost in order to pay for the machines.

Whatever the reason, in the words of veteran Houston contractor W. S. Bellows, "The competition is separating the men from the boys." AGC headquarters doesn't seem to be worried for its members. They are the men, Duddlesten says. This is probably true—at least we were unable to learn of any chapter member who has gone out of business. On the other hand, a couple of well-known out-of-town contractors are reported to have closed their Houston offices. And another has taken no business in a year rather than work at a loss.

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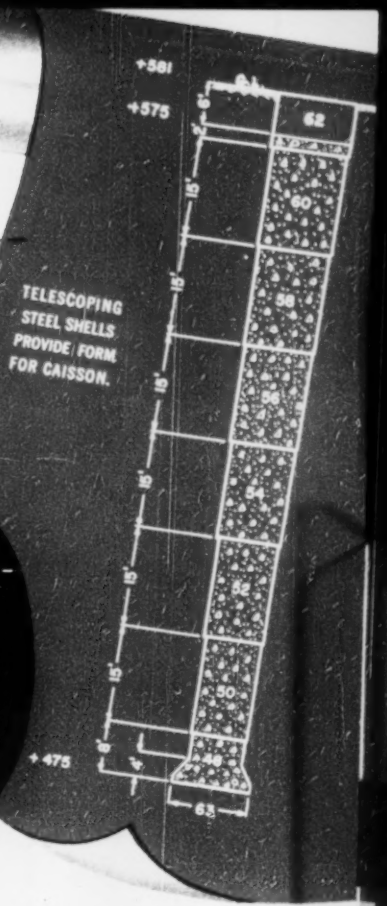

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